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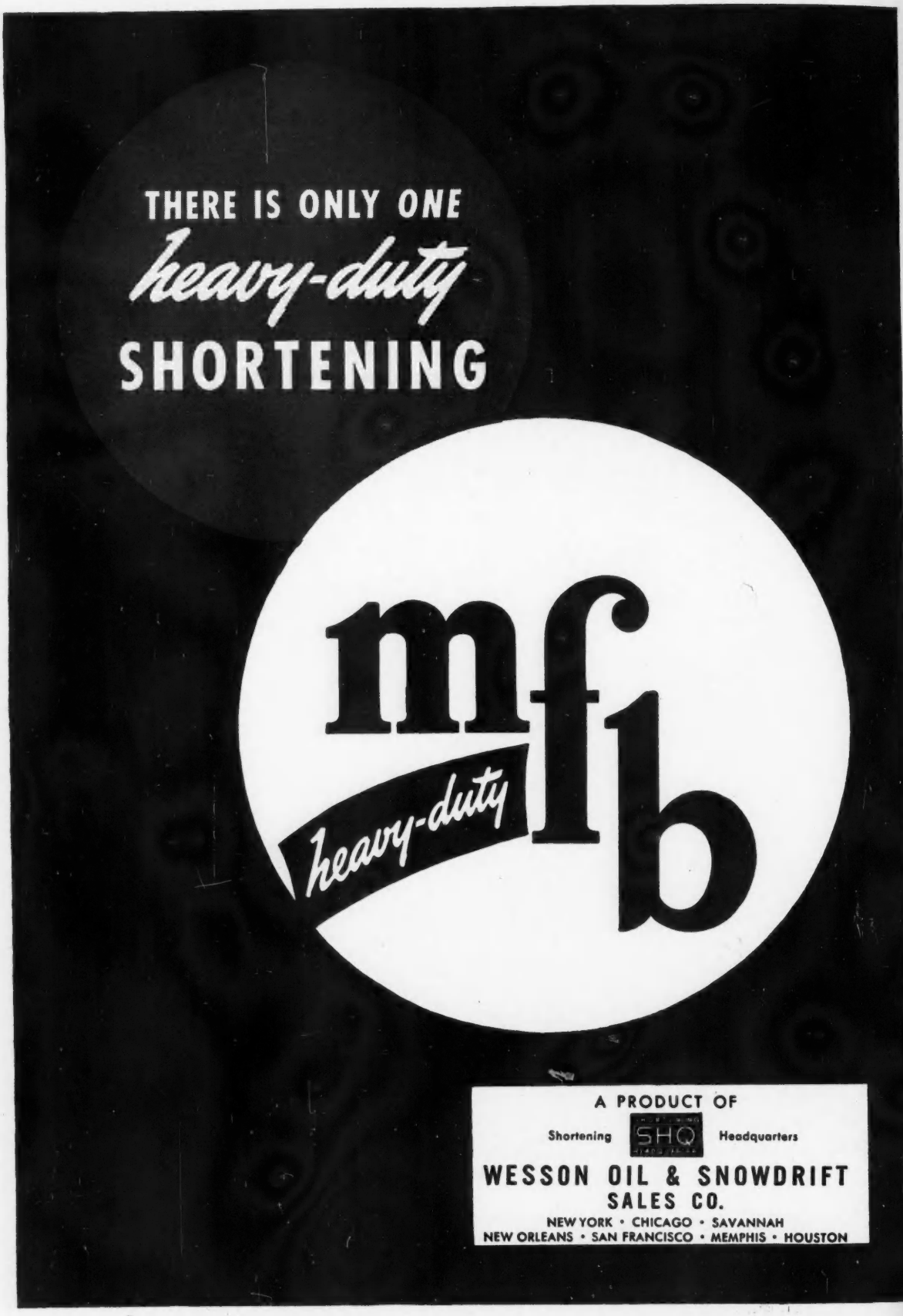
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Community Nutrition and the American Food Supply[1]

CHESTER A. HALNAN

Director, New York Area Office for Marketing, U. S. Department of Agriculture

In discussing techniques in community nutrition education, the members of the Community Nutrition Section of the Greater New York Dietetic Association have come to the realization that the weakest phase in our approach to nutrition education is in influencing Mrs. America at the "point of sale." This is clearly a marketing problem. To attempt to solve it, we need more background information in marketing than most dietitians have at their disposal. For example, we couldn't understand, on the one hand, the whys and wherefores of certain conditions which exist in our markets. Neither could we understand why Mrs. America does not make better use of the foods which are available. Thus, we sought a program which would give the missing link between production and marketing. Mr. Halnan is well qualified to give us the background we need to interpret present market conditions. As Director of the New York Area Office for Marketing of the Department of Agriculture he has been close to the market situation for a number of years. Throughout the war, he grappled with the frequent shortages and occasional surpluses in one commodity or another in the New York City markets. With the end of the war, he has dealt with opposite phases of this problem. The success with which he has enlisted cooperation of the groups whose participation was needed to see us through these trying periods, attests to his ability to see both sides of a situation. Mr. Halnan's address before our Association follows.—Katherine Connelly Wisely, chairman, Community Nutrition Section, Greater New York Dietetic Association.

IT SEEMS that the forefather of all industrial feeding projects was the "Pyramid-Sphinx Construction and Engineering Company." Labor-management relations, it appears—even in those ancient times—depended to a very great degree on the type of food served to workers. On a wall of one of the pyramids is recorded in hieroglyphics the story of a strike by one construction gang in protest against the lack of onions in the diet!

Today the whole concept of adequate feeding has changed from that of the time of the Pharaohs. Instead of the symbol of inadequate flavoring in the slave society of Egypt, good nutrition has come to mean dietary insurance for all members of society.

It is not my purpose to present the advantages of community nutrition programs. Their value to the health and well being of our citizens is accepted. Rather, I propose to present some of the facts about the food marketing picture which have a bearing on community nutrition programs.

In recent years it has become increasingly clear that food supply and food distribution are on the opposite faces of the same coin. As the science of nutrition has advanced, and as more and more people begin to apply this science to their daily lives, changes occur in the types and quantities of foods they buy. This leads to corresponding changes in farm production. One example of this fact is the phenomenal rise which we have witnessed during our lifetimes in the citrus fruit industry. Increased production has more than kept pace with the rise in consumer demand for this protective food. Or, conversely, there is the problem created by the slow but steady decline in consumer demand for potatoes during recent years, while production has climbed steadily upward.

1947 FOOD PROSPECTS

Let us look for a moment at food supply prospects during the balance of 1947. Any prediction, of course, is based on the assumption that we shall have neither unusually bad nor unusually good growing weather; that our food exports will total a little less than last year; and that we shall have no severe economic recessions.

Meat. Economists in the Department of Agriculture say that there will be about 5 to 10 lb. more beef per person than there was in 1946. That would be the highest rate since 1911. Pork supplies—although they have been seasonally short—will average for 1947 as a whole about the same as last

[1] Presented before the Greater New York Dietetic Association on April 14, 1947.

year. Lamb and mutton will be unusually short. Total supplies of all meat will probably be a little above last year. In any case, the feast and famine swings of the supply pendulum which occurred during 1946 will be less.

Fish. There will be plentiful supplies. A large quantity of frozen fish is in cold storage, and prospects are good for a better pack of canned fish than we had last year.

Poultry. The outlook seems bright. The per capita consumption last year of chicken and turkey was 25 and 70 per cent, respectively, above that of the years just before the war. And it looks as though it will be about the same this year. *Egg* supplies this year will be large enough for the whole population to eat one each day. Compare that with the annual prewar average of 298 eggs per person per year.

Dairy products. Milk and cream consumption over the entire year will probably drop from last year's high level, particularly if retail prices continue high, but we will still drink more milk than we did before the war. Lower consumption of fluid milk will leave better supplies of butter and other manufactured dairy products. Even with this increase, however, it is unlikely that butter supplies will reach the prewar level.

Fruits and *vegetables.* The situation will depend largely on the weather, but the outlook for both is good. The series of unusually severe cold snaps in the South cut sharply into the winter fruit and vegetable crops, particularly in Florida. Nevertheless, barring catastrophic weather conditions during the balance of the year, there should be an abundance and a variety of fruits and vegetables in both fresh and processed form.

Cereal grains. The pictures for these products is bright also. Even after meeting our foreign export commitments, there will be plenty of wheat and oats. Rye supplies will be lower than they were during the war, but rice supplies will be above 1946 levels. Rice will remain somewhat short by prewar standards, however.

Beverages and spices. These should be in good supply. Coffee and cocoa will continue to be plentiful. Tea imports, too, are expected to increase. Supplies of all spices will go up during 1947, as foreign sources continue to expand shipments. Mace, nutmeg, and pepper, however, may continue somewhat short by comparison with prewar supplies.

Sugar. This commodity will undoubtedly be more plentiful during 1947, as evidenced by the recent lifting of rationing restrictions for housewives.

Fats and oils. The bugaboo of 1946 will continue to plague us. Any increase in this commodity during the next few months will depend to a great extent on the increase in butter production mentioned above. However, during the marketing year beginning in October, 1947, we are likely to see a substantial increase in domestic production of fats and oils. As a result of price-support programs, we may safely predict increases in the production of flaxseed, soybeans, and peanuts. At the same time, the Far East is beginning its slow recovery from wartime devastations and this may make possible some increase in our imports of oils. However, while supplies of fats and oils will certainly increase in 1947, it will be some time before we can say that these commodities are abundant.

Margarine. Last year's production of this food, while slightly under 1945, was more than 60 per cent above the 1937–41 average. Soybean oil and cottonseed oil continue to be the leading margarine ingredients.

That, then, is the overall picture. In many ways we may regard the prospects with satisfaction. We have come through a war in which we fed ourselves at the highest level in our history. At the same time our Army and Navy were the best fed in the world, and we helped to sustain our fighting allies and the liberated countries of Europe, Asia, and Africa. Our farmers, with the aid of an almost unlimited market and favorable prices, produced more than ever before, in spite of many handicaps and shortages. Consumers, shopping with larger-than-average pay envelopes, ate more food than ever before—and wanted even more!

AGRICULTURE'S NEW FRONTIER

The next question is: "Where do we go from here?" The agricultural prosperity of the past three years is a direct result of huge crops and huge market demand. The market demand was provided by three things: (a) above-normal domestic food purchases; (b) military purchases; and (c) food exports. Military demands have already dropped sharply. Agriculture in foreign countries is beginning to stage a comeback. With each successive harvest, demands for American food abroad will decrease. In the final analysis, therefore, continued prosperity for the farmer must depend, in large part, on expanding our domestic market for food. Despite all of our gains of the past few years, there are still tremendous untapped markets for food in this country. A recent study by the Bureau of Agricultural Economics pointed out that even under conditions of full employment, food consumption in 1950—as measured by present consumption patterns—would still leave *many* American families eating *less* than an adequate diet! That is under conditions of *full employment.* Under less favorable economic conditions, as in the early thirties, we might see the tragic paradox of people starving while farmers staggered under unmarketable surpluses.

The new frontier for agriculture is right here at home. The good of achieving a minimum adequate diet for every family in the United States must be the basis of much of our future planning in agri-

culture. To achieve this goal, we must plan wisely in the twin fields of production and consumption.

Until quite recently, we have devoted the bulk of our attention to meeting and solving the problems of increased production. We have developed the science of plant and animal breeding to a degree undreamed of in the days of Luther Burbank and Charles Darwin. Using modern machinery, each farm worker today can produce many times as much food as did the worker of 100 years ago. The techniques of soil conservation and reclamation—irrigation and flood control—have served to maintain and to expand the productivity of our land resources.

However, increasing production offers small satisfaction to the farmer if he cannot get a fair market price for his output. Congress recognized this and in demanding increased production from the farmer, provided a guarantee for him so that by increasing his output, he would not bring on a collapse of farm prices and cause his own financial ruin. That is why we now have a framework of price-support legislation which helps to stimulate production where it is most needed. It offers price protection to the farmer during the critical period of postwar reconversion. Our farmers were able to meet the demands for increased production of certain essential commodities so necessary for our armed forces and fighting allies, as well as civilian demands. Following the war, with declining demands in sight, farmers were asked to reduce their acreages for some crops. This they did. For example, the acreage of potatoes was cut in 1945. It was cut still more in 1946, yet the 1946 potato crop hit a high of almost 475 million bu. This all-time record production was harvested on the smallest potato acreage since 1892.

Under our wartime pledge to farmers, the Department of Agriculture is committed by law to support farm prices of certain commodities at 90 per cent of parity until the end of 1948. Briefly, "parity" is the formula which enables a farmer to buy, with any commodity today—for instance, a bag of potatoes—an equivalent amount of goods which that commodity, or bag of potatoes, bought for him in the base period 1909–1914. Secretary of Agriculture Anderson has called the attention of Congress to certain problems presented by the present price protection pattern, and Congress is now considering the farm policy to be followed during the coming years.

Despite some imperfections which have become apparent, our price-support program has been generally useful and sound during the war years and in the reconversion period. The Department of Agriculture, however, is the first to admit that the program is in need of some changes now. In the final analysis, our success in insuring a healthy farm economy will depend on our success in insuring an adequate diet for every citizen and at the same time conserving our soil and water resources for future generations.

Eating the right amounts and types of food can be traced to three principal causes. The first of these is sufficient purchasing power. This is principally a matter of maintaining full employment, and is, of course, a crucial question for our whole economy. Full employment alone, however, is no guarantee of an adequate diet. In addition to purchasing power, people must be informed as to the importance of good diets and the ways to achieve them. This second factor brings up the role of education. The schools have already made large strides in this direction, and so have the press, radio, magazines, and other information media. Dietitians throughout the country are making their voices heard.

The third factor influencing food consumption is food processing and distribution facilities. Only recently have we begun to be aware of the size of this factor. Improvements have steadily appeared in recent years in our methods of food *processing*. You are undoubtedly well acquainted with the advances which have been made in quick freezing, pre-packaging, and other processing techniques. Much has been accomplished, but much remains to be done.

Modernization of our food *distribution* facilities, however, has lagged more seriously. Improper handling of perishable foods; expensive and wasteful duplication of hauling; and ancient and inadequate market facilities all take a huge toll of our food supply every day. Recent surveys have shown that there is scarcely a major city market in the country which can be said to have adequate facilities for handling and funneling the huge supply of food which is required in urban centers. The need for improving our food distribution machinery was revealed vividly during the war. Both industry and government are taking steps to meet this need.

The solution to these three problems—purchasing power, nutrition education, and improvement of food distribution facilities—offers a triple challenge. Primarily the challenge must be met in leadership in community education by you who are professionally trained in foods and nutrition. But the relationship between a healthy agriculture and a healthy population—between a well-fed, alert citizenry and the strength of a republic—is so close that the government's responsibility for aid and guidance cannot be ignored. This responsibility has been recognized by Congress in two measures which will be discussed briefly.

The first of these is the National School Lunch Act. Under it, Congress has dealt with all three of these considerations. This law provides for continuing federal support for school lunch programs which are sponsored and administered by state and local governments. By making available nutri-

tious noon meals for every child, regardless of ability to pay, the program deals with the factor of purchasing power. Secondly, it teaches proper eating habits at the age when it will do the most good. This is assured through the food patterns which must be followed in order to qualify for the federal subsidy. Children learn by doing, and there is no better way to teach them the essentials of good nutrition than by letting them eat an adequate noon meal every day at school. Finally, the program offers a distribution outlet for local and national food surpluses and thus helps to maintain farm markets. By taking into consideration the regional deficiencies in certain foods, the program makes it easier to provide well balanced diets for children in every part of the country.

The second measure which Congress has taken is the recently passed Agricultural Research and Marketing Service Act. Behind that name you will find an explanation of much of the current activity in industry and government which is aimed at broad improvements in our food distribution facilities. In this measure Congress has recognized the fact that research in marketing our farm produce has lagged far behind our research in improving production techniques. The Act provides for research by the federal government as well as federal aid to state and local research agencies to improve processing and marketing techniques, lower marketing costs, and to raise quality standards. In addition, it calls for vast consumer education programs designed to increase food consumption and make more effective use of our national food supply. As yet, however, Congress has not appropriated the funds which it has authorized under this Act. When it does, we shall have taken a long step toward insuring a really high level of diet in this country.

Part of the whole question of food supply and utilization is the way our domestic program ties in with agricultural conditions all over the world. The close relationship of every phase of our economy with that of the entire world has been taught too vividly by both world wars for us to ignore it in the field of agriculture. The United States, therefore, is playing a leading role in the Food and Agriculture Organization of the United Nations. This organization has already outlined a comprehensive program of world cooperation which, if achieved, will do much to improve dietary standards, eliminate famine, and provide security for farmers in every country. Such an achievement will benefit us in the United States quite as much as it will everyone else.

This discussion has purposely been kept very general, for it is the professionally trained dietitians who should have the overall, background picture concretely in mind. The public has the responsibility of trying to understand nutrition. Yours is the responsibility of making nutrition advice understood. Yours is also the responsibility of making practical suggestions in terms of the available food supply.

In conclusion, it should be re-emphasized that since agriculture is one of the principal pillars of our economy, we *must* keep farm production in high gear if we are to achieve economic stability. One of the responsibilities of the Department of Agriculture in this field, of course, is to encourage people to select foods necessary for good nutrition from the foods in local abundance. This helps create expanded markets for farmers. Those expanded markets in turn help to insure the food supply necessary for adequate meals, economically priced. Beyond that, however, the entire program of improving soil use and conservation of our land resources, the proper use of fertilizers and insecticides, advances in plant and animal breeding, all add up in the long run to a more adequate diet for ourselves and the conservation of national resources which insures nutritional adequacy for future generations.

Recognition of Cretinism

Cretinism is often not recognized until a baby fails to grow or develop mentally at the same rate as other babies of the same age. Consequently, irrevocable damage to the nervous system may have occurred. It is very difficult to evaluate the activity of the thyroid gland of babies by subjecting them to a test for the determination of the basal metabolic rate. However, it has been found recently that the serum precipitable iodine of cretin children is noticeably lower than that of non-cretin children. Thus, early evaluation of the serum iodine permits diagnosis to be made and treatment to be instituted before severe damage has occurred. At present the determination of serum iodine is a difficult clinical chemical test. Attempts are being made to simplify the method and to decrease the quantity of blood necessary for the test.—*Abstracted from a paper read by Dr. Evelyn B. Man, Department of Psychiatry and Pediatrics of Yale University Medical School, before the Federation of American Societies for Experimental Biology on May 22 in Chicago.*

Vitamin A Deficiencies in the Netherlands East Indies[1]

DR. A. G. van VEEN[2] and DR. S. POSTMUS

Eijkman Institute and Institute for Nutrition Research, Batavia, Netherlands East Indies

BARTER economy is still common in Java, and this explains why the people subsist largely on local produce, except for a few products, such as dried fish. The type of diet is, therefore, determined by the agricultural characteristics of the district. Both Java and Sumatra are very fertile tropical islands where many green vegetables, sweet potatoes, and fruits are grown. The main food is usually rice, corn, or cassava root, according to the climate and soil conditions.

As is usual in places where rice is the common food, the consumption of animal protein and fat is low, and moreover vitamin A deficiencies are found. The occurrence of xerophthalmia in the Netherlands East Indies has been recognized for a considerable time. Clinical examinations carried out by Tysen a number of years ago in the northern part of Sumatra (Atjeh) indicated that it occurred chiefly among children.

In 1935 in Segalaherang, a district in western Java, a large number of children were found to be suffering from xerophthalmia. Treatment with cod-liver oil produced rapid cures. These findings prompted the Institute of Nutrition Research and the Eijkman Institute in Batavia to undertake a systematic investigation of vitamin A deficiencies in Java. It soon became evident that vitamin A deficiency was much more prevalent in many regions than had been thought, and that children were more commonly affected than were adults. Also, there were more deficiencies found in some well-to-do regions than in the poorer ones. These and other nutritional problems required explanation and the Institute for Nutrition Research recommended a number of surveys—dietary, clinical, economic, and agricultural.[2] A few of these have been published, but in Dutch only.

SURVEY IN SEGALAHERANG

Thus, when a second outbreak of xerophthalmia was observed in Segalaherang in 1937, a dietary survey was begun and a quick medical survey made. Dark adaptation tests were performed by Gorter (1), but considerable difficulty was encountered, especially with children under five years of age. Later, vitamin A analyses were made on blood samples of both normal and vitamin-A-deficient persons. Of the first twenty-four adults who claimed to have an eye disease, only two were found to be dubious cases of hemeralopia, and twenty-two showed only presbyopia. Seventy-five per cent of the ninety-one children from two to eight years of age who were examined had xerosis conjunctivae, or xerophthalmia. Most of the children were in poor physical condition, and many did not tolerate cod-liver oil treatment well because of intestinal disease. Twenty-four died within a short period.

It is interesting that the people, who were well acquainted with the eye conditions (Bitot spots) associated with vitamin A deficiency, attributed them to intestinal disease and their hypothesis seemed substantiated by the condition of the children mentioned and by the fact that the total number of deaths due to intestinal disease, especially among children, was greater in 1935 and 1937 than in other years. It, therefore, seemed that vitamin A deficiency was a secondary factor in this district and that the outbreak of an intestinal disease, probably atoxic dysentery, may have lowered the absorption of vitamin A to such an extent that a deficiency resulted.

The Javanese people are small in stature and

[1] Presented at the Sixteenth Annual Meeting of the New York State Dietetic Association on May 22, 1947, at Lake Placid.

[2] Temporarily with the Nutrition Division, Food and Agriculture Organization of the United Nations, Washington.

[2] The general direction of the dietary and economic surveys was in the hands of our co-worker, H. G. Koefoed, agricultural adviser.

their body weight is usually under 50 kg. As there is a relatively large proportion of children in the total population, the average per capita body weight is between 33 and 35 kg. The dietary survey in Segalaherang (2) covered one hundred families, 60 per cent of whom had, or had had, cases of vitamin A deficiency. From the collected data based on the whole family, average daily consumption figures per person were calculated.

The vitamin A consumption varied between 430 and 1350 I.U. per person per day. Since the amount of animal products in the diets was very low, most of the vitamin A consumed was in pro-vitamin form. Of this, green vegetables and young pulses contributed 30 to 70 per cent and sweet potatoes up to 55 per cent. However, the total consumption of green vegetables and young pulses was low, scarcely ever exceeding 10 gm. per person per day.

There appeared to be no simple relationship between pro-vitamin A intake per family and the incidence of vitamin A deficiency. Because xerophthalmia was found only among children, it seemed desirable to investigate the distribution of vitamin A within a family. Such a study presented many difficulties, but was accomplished in a number of families having a low pro-vitamin intake. Distribution within a family was found to vary considerably, as shown in Table 2. The intake of young boys was especially low, probably because of the opinion common in many parts of Java that vegetables are not suitable food for men.

The table shows the same trends in protein consumption. Although adult requirements (3) were more than met, the children received far too little. The survey made it clear that the children's diets were much more deficient than those of the adults. One explanation for this seemed to lie in the fact that in this district the children were left to care for themselves while the parents worked on the plantations. Also, it is a common practice in Java to put most of the vegetables and young pulses into a soup (*sajur*) to which Spanish peppers and other condiments are added. Many children refuse to eat this highly seasoned soup and so are deprived of vegetables.

The medical survey covered not only the hundred families of the dietary survey, but also about 1300 other adults and 1150 school children between the ages of about six and twelve years. No serious diseases were found. Malaria and anemia were rare. One adult and twelve children, ten of whom were boys, had xerosis conjunctivae, and nine children were in a poor state of nutrition.

The medical examination was followed by a series of dark adaptation tests and a number of vitamin A determinations on blood samples. Of eighty adults, only one had hemeralopia; 3 per cent of 410 school children showed hemeralopia; and 22 per cent had poor dark adaptation. The average blood vitamin A level of thirty-six adults was 4.9 I.U. per 10 cc. serum and of thirty-five school children, 2.7 I.U. It might be added that there was a high incidence of blindness among children in this district. In 1930 there were 1.9 cases per thousand. Results of these surveys indicated that a greater consumption of green vegetables, sweet potatoes, young pulses, and fruits, all of which were abundant in the region, needed to be encouraged. It was evident that educational measures would be necessary to help effect such improvements.

TABLE 1

General type of diet in western Java

ITEM	AVERAGE CONSUMPTION PER PERSON PER DAY
	gm.
Raw, home-pounded rice	585
Roots and tubers	5
Pulses	5.7
Non-leafy vegetables	28
Leafy vegetables and young pulses	24
Fruit	17
Vegetable fats and oils	1.0
Meat and fish	20
Calories	2100
Animal protein	4.2
Vegetable protein	46.8
Fat	9.2
Vitamin A	1500 I.U.

CONDITIONS IN RENGASDENGKLOK

The next dietary survey was started in Rengasdengklok (4). This is a prosperous region near the coast where the chief crop is rice. Toward the end of 1938 a serious outbreak of xerophthalmia was reported. This time we were better prepared to

TABLE 2

Distribution of vitamin A and protein supply according to age and sex within a number of families in Rengasdengklok

AGE GROUP	INTAKE OF VITAMIN A AS PER CENT OF STANDARD*		INTAKE OF PROTEIN AS PER CENT OF REQUIREMENT**	
	Male	Female	Male	Female
yr.				
0– 6	21	62	59	69
7–16	40	64	74	65
17 and older	44	67	146	123

* A provisional standard of 25 I.U. vitamin A per kilogram body weight was adopted at that time for practical purposes. On an individual basis the intake of children is much lower than that of adults. It would have been preferable to state the actual intake per child and per adult, but these figures were lost during the Japanese occupation of Java.

** League of Nations report (3).

undertake a quick medical survey. The population here did not complain about intestinal disease, and the nutritional state of the children was much better than in the Segalaherang study. Of 487 school children examined in the village of Pataroeman, 3.3 per cent showed Bitot spots and 5 per cent were doubtful borderline cases. No vitamin A determinations on blood samples were made, nor was the distribution of vitamin A sources within the families studied.

The dietary survey covered five groups of families. Groups *1* and *2* consisted of ten families each and Groups *3*, *4*, and *5* of twenty families. Xerophthalmia was present only in the families of Group *1*. It was found that this group had the lowest vitamin A intake, averaging 550 I.U. per person per day, while the others had intakes of 1100 I.U., 1400 I.U., or higher. Green vegetables and young pulses supplied more than 75 per cent of the vitamin A.

The Group *1* families appeared to be poorer than the others, and were, for the most part, wage earners who did not have their own gardens. They made no attempt to buy fresh vegetables or to seek them by other means, as these products are not popular in Java. In addition, the diets of this group were found to be lower in calories and in protein.

The outbreak of xerophthalmia occurred just before the beginning of the rice harvest which is a season when fewer sources of pro-vitamin A are available. Six months later—in June, 1939—no cases of xerophthalmia or even of hemeralopia could be found, probably because sources of pro-vitamin A grown after the rice harvest were being consumed in greater quantity.

It should be noted that the outbreak of xerophthalmia in this group was not related to intestinal disease, but seemed due to the fact that the families of poor wage earners did not grow sufficient vegetables. In many cases the size of their holdings was the limiting factor. Moreover, they were not interested in buying vegetables. This again stresses the importance of education as a means of improvement in dietary habits.

VITAMIN A DEFICIENCIES IN PATJET

A third dietary survey (5) was made in Patjet, a prosperous region in the hills of western Java. There were no special indications of food inadequacies, although it was known that vitamin A deficiencies occurred among the children. The rice consumption in this region was high, and although most of the population was well-off economically, the diets were low in animal protein and fat. The consumption of sources of pro-vitamin A, chiefly green leafy vegetables, young pulses, and bananas, was not high. In one of the villages the pro-vitamin A intake averaged about 1470 I.U. per person per day.

An investigation was made among 1800 school children (950 boys and 850 girls). Of these, eight boys and two girls showed xerosis. Most of them were in a good state of nutrition.

Random blood samples collected from children as well as from adults were analyzed for vitamin A. The results are shown in Table 3. Low vitamin A levels and xerosis conjunctivae were found almost exclusively among the children, especially the boys. Adults had a higher vitamin A level, and no significant sex difference was apparent. It is of interest that although the diets of this prosperous district were low in fat and in pro-vitamin A, the vitamin A levels of the adults were comparatively high.

DISCUSSION

The results of these various surveys suggested that analyses of representative numbers of blood samples from different regions might give considerable information on vitamin A intake, and might aid in the early recognition of borderline cases of xerophthalmia. Dark adaptation tests, especially in small children, are difficult to perform and dietary surveys are expensive, troublesome, and take a long time.

On the other hand, people usually do not object to a single blood test if the quantity of blood taken is relatively small. Accordingly, one of our coworkers (6) devised a method suitable for a tropical climate for which only 1 to 2 cc. blood are required.[3] This method was used in making a large number of vitamin A determinations in many regions of Java (7). The results were similar to those in the surveys. The vitamin A levels of small children were on the average lower than those of the adults in the same family or in the same region. Seasonal influences were observed, but they were generally insignificant.

It might be argued that the low vitamin A level of the children was due to their greater requirement for this vitamin. However, this was not borne out either by our observations or the available literature. If it were true, one would expect the children to have an even lower vitamin A level in regions where the adult level is lower than in Patjet. This, however, was not the case and, in addition, more clinical vitamin A deficiencies were found in the well-to-do Patjet district than in the majority of the poorer regions.

Among the children in Java, a low blood vitamin A level and clinical signs of deficiency generally seemed to result from an inadequate consumption of foods containing pro-vitamin A, as was shown in the Segalaherang survey. In less prosperous regions where the consumption of basic foods was lower, more supplementary foods, such as green vegetables and young pulses, were eaten. When this was true, the difference between the vitamin A levels of young and old was less marked, and clinical deficiencies in

[3]Even less blood is now required, but at that time (1935–38) it was usual to take 5 to 10 cc. blood.

children were not as common. In some of these regions, the consumption of vegetables and pulses was actually much higher than in Patjet. For example, the average intake of vitamin A in Pulusari, a village in a poor district where there was much nutritional edema, was 3500 I.U. per person per day.

Because most of the vitamin A in the Javanese diet is derived from vegetable sources, we were interested in the conversion of carotenoids into vitamin A. A microchromatographic method was elaborated for determining both qualitatively and quantitatively the separate pro-vitamins in blood samples (8). However, it was necessary to adapt the method to the high tropical temperatures which prevented, for example, the use of calcium hydroxide because of its weak absorption at such temperatures. The chemical identity of each carotenoid was determined by a mixed chromatogram. The method was sensitive enough to give an approximate quantitative analysis of even a few micrograms of carotenoids.

This method was used to determine the qualitative and quantitative composition of the serum carotenoids of Europeans, Javanese servants, and native prisoners (9). The findings from the latter group of subjects were particularly interesting because their physical condition was known and their diets had remained the same for more than a year and a half. Green vegetables, sweet potatoes, and fruits provided them with more than 9000 I.U. vitamin A per person per day.

Both food and blood serum were analysed for vitamin A and its pro-vitamins. Of the total quantity of pro-vitamin A in the food, β carotene accounted for about 75 per cent, α carotene 7 per cent, and cryptoxanthine 16 per cent. The uniformity of the pro-vitamin A supplied by vegetables was reflected in the uniformity of the chromatograms. In contrast with what was observed in most Europeans who received a good deal of vitamin A from animal products, α carotene was usually absent in the blood of the prisoners, β carotene was present only in small amounts (less than 15 per cent of the total carotenoids), but cryptoxanthine was found in relatively large quantities (25 to 35 per cent of the total carotenoids). Cryptoxanthine, supplied chiefly by Indian corn and Spanish peppers, occurred in the food in much smaller concentrations than β carotene. The average real vitamin A level of the blood was practically the same in all three groups, although the Javanese servants and native prisoners obtained their vitamin A only from pro-vitamins. The low levels of α and β carotenes in the blood of of these two groups may be explained by the fact that they were used up in the conversion into vitamin A. The conversion of these carotenes is apparently accomplished more easily than is that of cryptoxanthine. It is questionable whether cryptoxanthine, which occurs in many vegetable foods of tropical countries, is a pro-vitamin for man as it is for the rat.

TABLE 3

*Vitamin A analysis of blood samples in Patjet district**

GROUP	NUMBER	VITAMIN A
		I.U./10 cc. serum
Boys, school age	39	4.8 ± 0.24
Girls, school age	30	7.7 ± 0.45
Adults, male	49	9.8
Adults, female	40	10.0

* Xerosis conjunctivae is usually apparent when blood vitamin A is less than 4 I.U. per 10 cc. serum.

The blood of native prisoners showed an average content of 7.9 I.U. vitamin A and 8.6 mcg. of total carotenoids with standard deviations of 2.1 and 2.2, respectively. In the case of Europeans in Batavia, the vitamin A averaged 9.5 I.U. and total carotenoids 11 mcg. with corresponding standard deviations of 2.1 and 3.9.

At the beginning of the war it was very difficult to obtain good grades of cod-liver oil for treating xerophthalmia and hemeralopia. We, therefore, tried red palm oil which was very cheap in Java and had about the same vitamin A potency, although it contains only pro-vitamins. It was reported that a few grams each day mixed with coconut oil were about as effective in curing xerophthalmia as cod-liver oil. It was injected intramuscularly in a few cases and cured xerophthalmia in children within a couple of days. It would be worth while if this work could be confirmed.

SUMMARY

In 1937 the Eijkman Institute and the Institute for Nutrition Research in Batavia began a series of dietary, clinical, economic, and agricultural surveys to investigate nutritional problems in the Netherlands East Indies. Cases of vitamin A deficiency were found to exist almost entirely in children, as evidenced by the incidence of xerophthalmia and hemeralopia. In accordance with Tysen's observation in northern Sumatra, vitamin A deficiencies were more common among boys than girls.

Consumption of animal products and, therefore, of preformed vitamin A was found to be negligible. Where the distribution of pro-vitamin A intake within a family was studied, the children's intake was found to be considerably lower than that of the adults. The unpopularity of vegetables, as well as the custom of making them into a highly seasoned soup (*sajur*) which children often refuse to eat accounted for this difference to some extent. The fact that in many parts of Java vegetables are not considered suitable food for men may account for the higher incidence of vitamin A deficiency in boys.

Vitamin A deficiencies were not as numerous in poorer regions where rice and cassava were not

abundant and consequently more vegetables were eaten. On the other hand, in one district such deficiencies were common among the children of poor wage earners who did not have gardens in which to cultivate vegetables and fruits and who did not obtain them from other sources.

In another district the sudden occurrence of vitamin A deficiencies among children seemed due to an outbreak of intestinal disease and the consequent decrease in the absorption of the already low pro-vitamin A intake.

A microchromatographic method by which individual pro-vitamins could be determined was elaborated and used to study serum carotenoids of groups of Europeans, Javanese servants, and native prisoners. The latters' diet had been constant for about one and a half years with an intake of approximately 9000 I.U. of vitamin A in pro-vitamin form per person per day. The tests showed their blood vitamin A level to be normal; carotene to be present only in small amounts; and the cryptoxanthine content to be high, indicating that this carotenoid probably does not serve as a pro-vitamin for humans. The blood vitamin A level for adults was found to be high in one of the most prosperous regions where the consumption of green vegetables, sweet potatoes, fruits, and fats was low. Thus the absorption of pro-vitamins and their conversion to vitamin A apparently present no difficulty with these people.

Red palm oil which contains only pro-vitamins proved to be an excellent substitute for cod-liver oil in treating xeropthalmia.

The almost insignificant consumption of animal products and the low intake, especially among children, of pro-vitamin sources were found to be the principal causes of vitamin A deficiencies in Java. These are due mainly to ignorance and prejudice, and their alleviation requires intensive educational measures.

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Honey for Treatment of Peptic Ulcer

Balmer has pointed out that the natural course of chronic benign peptic ulcer is characterized by periodicity of symptoms for reasons not clearly understood. This together with the important, although intangible effect of mental suggestion renders the evaluation of any treatment difficult. Three persons who reported cessations from symptoms of peptic ulcers after taking honey as a therapeutic measure are convinced, no doubt, that honey is an "ulcer cure." The possibility that all three had spontaneous remissions would seem an unsatisfactory explanation. On the other hand, honey has a variable composition. The chief constituents, dextrose and levulose, do not have any specific therapeutic effect in peptic ulcer. To attribute the relief of ulcer symptoms to the use of honey per se would also seem an inadequate explanation. In this connection it is interesting to note that of a group of twenty ulcer patients treated by Sandweiss with daily injections of 5 cc. of distilled water, twelve or 60 per cent became symptom free. Five, or 24 per cent, became symptom free after the first injection. Such observations emphasize the difficulties in evaluating ulcer treatment. They also illustrate the importance of mental suggestion, enthusiasm, faith, or whatever term one wishes to apply to the frequently observed phenomen of "ulcer cures" following nonspecific therapy. The importance of these intangible factors in the treatment of peptic ulcer is well recognized, even if not clearly understood. Consequently, the therapeutic rationale of the use of honey seems quite clear. One can hardly escape the conclusion that it is only of psychotherapeutic value.—*From Queries and Minor Notes, J. A. M. A. 134: 489 (May 31), 1947.*

Food and the Health of Nations: An Historical Approach

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THE statement made in 1943 that "nutrition, therefore, becomes a primary concern of governments, everywhere" (1) is far-reaching, but a trend toward this realization has been evident during the past decade. As the relation of improved nutrition to the individual's welfare has been more adequately recognized, an understanding of the relation of food to the total health of a nation has naturally evolved. In turn, there has developed a realization of the need for better nutrition in all nations. The scope of the problem is almost beyond comprehension, but the forty-seven member nations of the Food and Agriculture Organization are undertaking the task—one that was not even suggested in the literature of a century ago.

The development of the science of nutrition has proceeded so rapidly within the past decade that it is difficult to realize that one hundred years ago only a few professional persons were convinced of the value of food for the well being of the *individual*, and that any attempt to relate food to the total health of nations occurred to only the rare far-sighted person. There is great hope in the activities of the United Nations' Food and Agriculture Organization. In an early publication of this new organization one reads: "There is some evidence of the general improvement of health and physique which can be produced by the improvement of diets but the future holds the story of how improved health will alter the economic and political power of nations now impoverished and half-starved."

In 1851, Otto Ule looked to the future for that same answer. Sections of his interesting paper on "Food and the Development of Man" (2) are almost prophetic of present day discussions:

> Of all the influences which determine the life of the individual, and on which his weal and woe depend, undoubtedly the nature of his food is one of the weightiest. Every one has for himself experienced how not only the strength of his muscles, but also the course of his thought and his whole mental tone, is affected by the nature of his food. And shall not that hold good for nations which holds good for individuals? Shall the sum of mankind be less affected in their physical and mental development by the food they take, than the individuals of whom that sum is made up? This seems to be the decision of history . . . . If nations are to flourish, they, no less than individuals, need wholesome, strong food. The only question is, How are we to determine what food is strong and wholesome?
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> Foods have been classed in different groups, according to the influence they have on the body, in virtue of their essential constituents; and though this classification, like every artificial classification we make in Nature, is only approximately correct, still it gives us some ground to stand on . . . . Science can now pretty accurately determine the composition of every article of food, and hence its contents of the various nutritive principles. This is done by chemical analysis. Chemical analysis, however, is of little assistance to us in determining accurately the constituents of our daily food. For, if one, being over-anxious on this point, wished to avoid all danger by having all his food examined by a chemist, so as to apportion by weight the amount of this substance and of that which he should take, there is reason to fear that he would die of hunger long before the chemist had concluded the analysis.
>
> Fortunately, there is a better method of avoiding danger, and of this we wisely make use under other circumstances. When we would protect ourselves against the chance which gives up our houses to destruction by fire, or when we would secure our dependents against the accident which deprives us of life and them of a protector, we take out an insurance policy on house or life. But this insurance is not a transaction between two or three, but between hundreds of thousands and millions. A mutual insurance transacted between three persons were a game of chance, between millions it is a sure calculation. We defeat chance, when we share it with others.
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> To apply all this to the matter in hand: we must not restrict ourselves to a few articles of food, but must have a great variety of foods to select from; we must not partake of the same fare day after day, but must vary it as much as possible. Only with a varied and alternating dietary can we be sure that what is lacking in one foodstuff will be supplied in another, and that what we fail to get today we shall have tomorrow. . . .
>
> Here we have an important rule for determining a wholesome diet. The foods we use must contain the indispensable elements of nutrition in due proportion; our food must be mixed, varied, and alternating. And

> what is here said with regard to individuals, holds good also for nations. The foodstuffs of an energetic population are up to the standard only when they are multifariously blended, and when there is a due proportion of substances belonging to the three groups mentioned above.[1] Now, this relation between the nutrition and the physical and the mental development of people must be apparent in the history of their civilization. Where the food is insufficient, fluctuating between want and excess, uniform and undiversified, the capacity of the people for work must be inferior; their bodily strength and their mental culture must be of a low grade.
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> But, when we turn our eyes to the pages of history for a confirmation of this, we meet with our first real difficulty. History tells us much about deeds of heroism, bloody wars, conquests, and revolution; of politics, manners, and customs, and even of the thoughts that have occupied the minds of nations; but of their cuisine, their bill-of-fare, history tells us nothing. And yet a history of the foods of nations would be an addition of great value to the history of human civilization.

The early part of the nineteenth century in the United States was a period of great conflict as to the advantages and disadvantages of a vegetarian and of an "animal food" diet. Among the publications which entered into the controversy, there is one which particularly pointed out that persons were looking beyond the feeding of an individual to the value of food to a community. The Boylston Medical Committee of Harvard University in 1835 offered a prize for the best dissertation on the question "What diet can be selected which will ensure the greatest health and strength to the laborer in the climate of New England—quality and quantity, and the time and manner of taking it, to be considered?" The prize was awarded to Dr. Luther V. Bell of Derry, New Hampshire (3).

In any presentation of instances in which the relation of food to positive health was suggested prior to 1900, it must be remembered that the nineteenth century was the "Age of Bacteriology"; that the primary interest of public health was in the sanitary aspect of food; and that the medical interest was devoted almost entirely to the question of which foods should or should not be eaten under specific disease conditions. In other words, the negative approach to food was of major interest while the positive value of food in health as well as in disease was not generally realized until the turn of the century.

One of the early great hygienists, Max von Pettenkofer, had the vision to see beyond the laboratory interest in the food nutrients to the time when food would be given its due place in the field of public health. In 1873 he presented two lectures titled "The Value of Health to a City." His discussion of the value of food is of particular interest to those who are now looking toward the United Nations for the answer to the questions he posed. He wrote (4):

> It is a remarkable fact that today almost every educated farmer knows exactly how much protein and other substances he must feed to a hog, a sheep, a cow or an ox, if he wants to produce a definite result. He knows what composition of fodder is required for maintenance, for fattening, for the production of milk or for muscular development. Man, however, has hardly been touched by the rays of the rising sun of the science of nutrition. Many, of course, will say: "We do not need these rays in order to live well; we have done it before without them." It is quite true that plants and animals and man existed, developed and thrived long before scientific principles could be established for their nutrition. We must fully admit that, if we could live only on what had been ascertained scientifically, all of us, as many as we are, would have perished long ago.
>
> Science does not precede existence and life; on the contrary, science in itself is only a slowly and late ripening fruit of civilized life—but we must not forget that life is being fertilized by this fruit over and over again. Since problems of nutrition, following powerful trends of science, are being investigated along such lines, we already obtain more grain from the same fields and more meat from the same animals than heretofore, with less material. Thus the influence of science will be felt more and more in human nutrition also and the results will certainly be very useful and profitable.
>
> In the meantime, there are still many prejudices against such experiments in human nutrition, but they will soon be overcome in view of the results obtained with such methods in the nutrition of man's domestic animals. Then, it will be possible to apply scientific principles in human nutrition too. Agricultural institutions already spend annually, much to the benefit of agriculture, many thousands of florins, and most of them have larger funds available for experiments on animal nutrition alone than medical faculties have for the whole field of human physiology. Is the nutritional problem of the inhabitants of a city less interesting scientifically, is it really practically of less value than that of sheep, oxen, or hogs? If the city of Munich appropriated a few thousand florins for investigations on the most rational diet of its 170,000 inhabitants, would it really be more difficult to justify such an expenditure than the nutrition budget of an experimental agricultural farm? . . . .
>
> If we had to answer, at the present moment, the question how far nutritional conditions are responsible for the higher death rate of Munich, we would feel just as embarrassed as many a student who has hit a very difficult question in his examination. The student is better off, because he can go home and read in the textbook what he should have said; as a rule, he will remember the correct answer all his life. In our case, however, even the professor can give only an incomplete answer. The textbook still has to be written, and it will cost much labor, time and money to complete it.

It is of further interest to realize that at approximately the same time, Dr. Pavy, a London physician, wrote of his personal awareness of the importance of food as a public health problem in a text entitled

[1] The three groups the author mentioned are: blood-formers or albuminates; heat-producers or respiratory foods rich in carbon; and the nutritive salts.

A Treatise on Food and Dietetics. He wrote (5):

> Upon the supply of a proper quantity and quality of food the maintenance of health and life is dependent. The records of this and other nations have from time to time afforded bitter evidence of how intimately disease and mortality are associated with the supply of food. *Plague, pestilence,* and *famine* stand associated together in the public mind; and, through an imperfect knowledge of the principles of dietetics, the most calamitous results have sometimes occurred from improper dieting amongst large bodies of men. The consideration of food thus becomes a matter of the deepest public importance.

With this brief consideration of the attitude of a limited few toward food and public health during the nineteenth century, turn now to the hopes of the League of Nations international committee on the relation of nutrition to health, agriculture, and economic policy. This committee was appointed in 1935 and in its international aspects may be considered the forerunner of the Food and Agriculture Organization of today.

Following a discussion on food in relation to health, agriculture, and trade, a Technical Commission of fifteen scientists was appointed to make a report (6) on the "physiological bases of nutrition." After it was received, another Committee, consisting of economists, agriculturists, and administrators, was appointed to consider the agricultural and economic problems posed by the report. This Committee wrote (7)

> . . . if Governments can achieve for their peoples adequate levels of food consumption, further progress, in no way less spectacular than that achieved during the nineteenth century, can be made in increasing the quantity and raising the quality of human life. Not only will national expenditure on hospitals for the treatment of sickness be thereby greatly reduced, but improved health will certainly be accompanied by increased efficiency and a rise in material welfare and happiness. Medical science has already made great strides in the control of disease: in this advance, the science of nutrition has participated, but the application of the "newer knowledge" has only just begun. If the hope which nutrition holds out can be transformed into a reality, entirely new perspectives will be opened up for the improvement of human welfare.

The Committee report further stated: "The malnutrition which exists in all countries is at once a challenge and an opportunity; a challenge to men's consciences and an opportunity to eradicate a social evil by methods which will increase economic prosperity (8)." Later, on the recommendation of the League, more than twenty different countries appointed national committees to advise their governments on the measures needed to improve nutrition (9). The outbreak of World War II terminated this movement to study ways and means of adjusting agriculture and trade so as to provide to all people a diet adequate for health. War has re-emphasized the importance of food to the total health of a people, and individual nations have recently made surveys, planned programs, and increased their educational campaigns for better health through adequate food. And now, within a period of only one hundred years in the history of mankind, we have hope for international cooperation in the matters of food production, distribution, research, and education.

In this short span, food has evolved from a point of "what not to eat when the fever strikes" to a realization of the value of food for the maintenance of health among all peoples of the world. Appreciating this, there is reason for optimism concerning the aims of the Food and Agriculture Organization. That organization is now developing plans which will activate the realization of the public health value of food —a realization that had its birth less than a century ago. If the next hundred years bring advances in the concept and appreciation of nutrition comparable to those made within the last century, and there is every reason to believe that they will be surpassed, the "future *will* hold the story of how improved health will alter the economic and political power of nations now impoverished and half-starved."

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According to the Office of Business Economics, the U. S. spent $46 billion for food and beverages in 1946. The average per capita expense was $330 as compared to $305 in 1945 and $170 in 1941.

Comparison of Meat and Legumes in a Controlled Feeding Program[1]

III. Discussion of Findings

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THIS IS the third and concluding installment in a series of reports concerning a fourteen-month study involving two groups of orphanage children in which the relative value of meat and of legumes was investigated under controlled conditions. The children in Institution I were provided with poultry and fish once weekly, and meat (with one tenth by weight as liver) once weekly, to the extent of 100 gm. for children ten years of age and over, and 75 gm. for those from seven to nine years. In Institution II, the same quantity of poultry or fish was fed, and nine portions of meat (one tenth as liver) of the same weight were provided. In the first institution, legumes and related vegetable products of high protein content were provided to such an extent that the caloric value of the dietary and the content of all nutrients were equivalent to that of the second institution on a calculation basis. All other foods were included in the master plans for the respective institutions so that the dietaries in both cases would meet or exceed specified recommended allowances and would be very close to each other.

The average actual intake of the children in the two institutions during the course of the investigation was such that all recommended allowances were met or exceeded except for caloric intake in Institution II and vitamin A intake according to the Munsell recommendations in both institutions. The average intake of protein by both groups was practically identical, and that of each other considered nutrient was very close except that Institution II children ate less weight of food and were lower in caloric intake and in intake of vitamin A than those of Institution I. Institution I was slightly higher also in intake of thiamine and of ascorbic acid, whereas consumption of phosphorus in Institution II was slightly higher.

Both groups of children were considerably undernourished at the beginning of the study, and hence several types of changes during the investigation could be expected. Both groups could change similarly, either for better or for worse. One group could show a more highly favorable or unfavorable change than the other.

In physical well being, both groups showed marked improvements in many respects for which observations were made. Children in Institution I on the low-meat-high-legume intake failed to surpass those in Institution II on the higher meat intake in any respect, whereas the children in Institution II exceeded those in Institution I in numerous ways as shown in the tables and discussion in Part II of this series of reports.

Points in which the children in the two institutions differed from each other in the changes which they exhibited, particularly in relationship to the findings of other investigators, form the basis for the present discussion. Some of the outstanding changes found in the study are shown graphically in Figures 1, 2, 3, and 4.

Since, in this investigation, milk intake was the same for both institutions, differences in responses to the observations and tests could be attributed as due to differences in intake of meat and of legumes (supplemented by macaroni and nuts), not to the

[1] This study is one of a series of investigations on child feeding carried on cooperatively with the Department of Health, Commonwealth of Pennsylvania. It was assisted by a grant-in-aid from the National Live Stock and Meat Board. Received for publication June 3, 1947.

[2] The authors are indebted to their colleagues at the Ellen H. Richards Institute for making the many tests and observations involved in conducting this investigation, and particularly to staff members of St. Mary's and St. John's Children's Homes, Cresson, Pennsylvania, and of the Cambria County Children's Home, Ebensburg, Pennsylvania, for their patient cooperation. Likewise, the authors wish to express appreciation to Dr. Maloise Sturdevant Dixon for help in making tables and graphs and to F. E. Robinson for making the drawings which are part of this report.

milk level. The superior progress in many respects of the children on the higher meat intake was consistent with the findings of many investigators who have studied the relative biologic value of certain protein-containing foods. Thus Mitchell (1) states that animal foods are superior to vegetable foods as dietary sources of protein; that the high protein content of the latter is deceptive because of the enormous losses of nitrogen in the course of their utilization in digestion or in metabolism, or in both; and that meat and meat products must be regarded as the pre-eminent sources of protein, because, even though the biologic value of animal tissue is lower than that of eggs or milk, the higher content of protein in animal tissues more than offsets their greater loss in metabolism.

Mitchell and Carman (2) state that the average biologic values found for the proteins (N × 6.25) of eggs, of pork, and of wheat at an 8 per cent level of intake were, respectively, 93, 74, and 67. Though the biologic value of the total nitrogen of lean pork is not much greater than that of the nitrogen of whole wheat, lean pork still must be ranked among the best protein foods, according to these investigators, because of high *net* protein value. Based on average determinations of the crude protein content of these foods and the percentage losses in digestion and metabolism indicated by the results of these experiments, the content of *net* protein of egg is 12.5 per cent; of lean pork, 14.6 per cent; and of whole wheat, 7.6 per cent.

Stare and Davidson (3) state that the biologic or nutritional value of proteins is dependent on their content of amino acids, particularly those which are essential. Proteins of animal origin which include not only those in meat, both from muscle and glandular tissue, but also those from milk, eggs, fowl, and fish, are of higher nutritional value than the commonly used vegetable proteins, since they are complete.

Turner (4) has stated that the various methods of determining the relative values indicate that proteins of animal origin, i.e. milk, eggs, meat, poultry, fish, and cheese, are superior in nutritive efficiency to most vegetable proteins. Furthermore, while these animal proteins are much alike in the value of their proteins, the same is not true of the vegetable proteins. Thus, oats rank higher in biologic value than does white wheat flour, whereas wheat is superior to corn in biologic value. Peanuts rank high in biologic value. White wheat flour was found to be lower in nutritive efficiency than the whole grain.

Fixsen (5) found that proteins of animal origin are superior in biologic value to those derived from plants. Of the animal proteins, milk and eggs share first place. The proteins of liver and kidney have a higher value than those of muscle. Cereal proteins, though inferior to animal proteins, have been found to possess higher values than those of legumes. The proteins of legumes were found to be the poorest in value of all those investigated, probably because of a deficiency of cystine.

Wilder and Keys (6) place milk first in biologic value, with meat and fish next. They found the protein of peanuts and soybeans superior to that of any of the cereals.

Maynard (7) has stated that, even though cereal protein is not as high in biologic value as that of animal products, combinations of cereal and animal protein provide a diet of excellent protein quality. Dry legume seeds, he found, are approximately twice as rich in protein as the cereals. While legume protein is of rather low biologic value when fed alone, its deficiencies are made up by other proteins in a mixed diet.

Murlin, Edwards, and Hawley (8) in investigations with human subjects found the biologic value of whole egg protein to be 97, beefsteak protein 84, soybean protein 81, peanut protein 83, yeast protein 87, and cottonseed protein 91. They found the true digestibility for these several proteins to be as follows: beefsteak protein 97, egg protein 96, peanut protein 93, soybean protein 89, yeast protein 87, and cottonseed protein 78.

Melnick (9) has stated that quality, rather than quantity, of protein is the important factor in preventing nutritional edema. Inadequate protein diets were primarily responsible for the appearance during war of edema in countries where dietary restrictions existed. Accordingly, nutritional hypoproteinemia and its accompanying edema must be attributed primarily to an inadequate intake of the essential amino acids. Quantity of protein is of importance only in the sense that consumption of a large excess of the foodstuff is instrumental in furnishing sufficient of those essential amino acids which are present in low concentration in the protein mixture.

Mitchell (10) found that eggs, milk, and the more tender cuts of meat are among the most valuable protein foods, with biologic values ranging from 74 to 94. The cereals and nuts are next in order, 50 to 74, while the leguminous seeds seem to be the least valuable, 50. The protein mixtures in foods may be improved by supplementing food with an essential amino acid that limits its biologic utilization, according to this investigator. For the rat, the biologic value of milk proteins is improved by a supplement of cystine or methionine, while that of wheat or flour proteins responds to lysine. The common provision in dietary standards that a certain portion of the protein intake, 40 per cent at least, be from animal sources can be amply justified on the basis of marked supplementary action between animal and cereal proteins. By this action the value of the cereal protein is greatly enhanced,

particularly if the animal protein is derived from meat.

Macy (11) has stated that it is possible that children of less nutritional stability, even though they manifest no detectable signs of ill health, might be benefited by higher intakes of amino acids which would be provided either by consuming more protein than recommended or by obtaining the greater part of the protein from animal sources.

Beach and co-workers (12) claim that, as a class, the proteins of animal origin are recognized as superior in nutritive value to those of vegetables and cereal grains. This superiority has been attributed largely to the more satisfactory amino acid composition of the animal protein. The amino acid composition of the red blood cell stroma proteins of man and other mammalia is similar to that of the proteins of muscle meats. Since meat is one of the most satisfactory sources of dietary protein and is similar in composition to human muscle, its amino acid pattern might well serve as a guide in compounding successful protein mixtures from cereal and vegetable sources, according to these investigators.

With respect to *growth*, there was but small difference between the two groups of children in this study in the percentage of those in the optimum weight class (according to the standards used) for their sex, age, height, and body build (Fig. 1). In view of the fact that a small child is not expected to carry as much weight as a larger child of the same sex-age specifications, however, failure to grow is not shown in its proper light in this comparison. A better comparison is made by ascertaining the percentage of children in the two institutions who maintained the same height-weight schedule of development for the age or who progressed to a higher schedule. The Wetzel Grid (13) offers a basis for comparison in this regard. These respective percentages were 74.2 and 90.2 for the low meat and higher meat intake groups.

The results of the studies of Wu and associates (14) demonstrate that animals ingesting a vegetarian ration grow at a slower rate than controls ingesting a mixed diet. The diminished growth rate is accentuated in successive generations. There is no decided difference in life span, however, and in view of the slower rate of growth it follows that the vegetarian rats attain a smaller final body weight than do the control animals. The basal metabolism of the vegetarian rats is lower than that found in the omnivorous animal.

Russell (15) found that the addition of fresh beef or of a meat scrap to a wheat-milk diet improves reproduction and the growth rate and general vigor of the young in experimental rats.

Russell and co-workers (16) found that animals fed Lima beans, snap beans, soybeans, peas, or chick peas at a 10 per cent level as the sole protein source improve in growth when fed additional

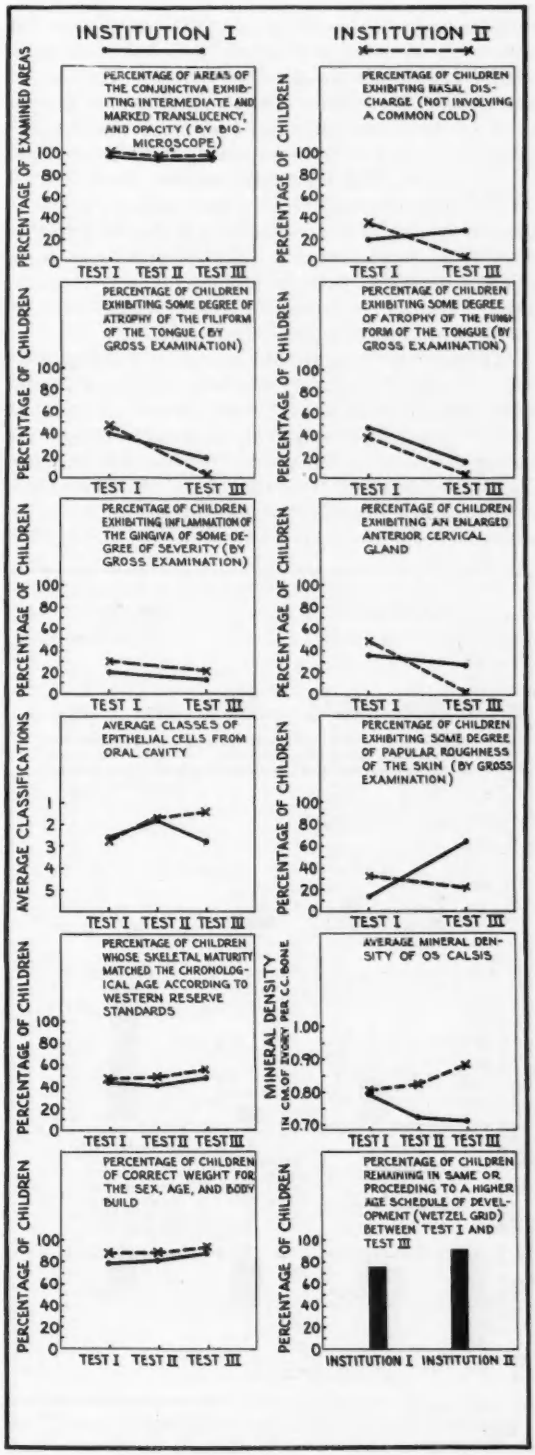
INSTITUTION I
INSTITUTION II
PERCENTAGE OF EXAMINED AREAS
PERCENTAGE OF AREAS OF THE CONJUNCTIVA EXHIBITING INTERMEDIATE AND MARKED TRANSLUCENCY, AND OPACITY (BY BIO-MICROSCOPE)
PERCENTAGE OF CHILDREN
PERCENTAGE OF CHILDREN EXHIBITING NASAL DISCHARGE (NOT INVOLVING A COMMON COLD)
PERCENTAGE OF CHILDREN EXHIBITING SOME DEGREE OF ATROPHY OF THE FILIFORM OF THE TONGUE (BY GROSS EXAMINATION)
PERCENTAGE OF CHILDREN EXHIBITING SOME DEGREE OF ATROPHY OF THE FUNGIFORM OF THE TONGUE (BY GROSS EXAMINATION)
PERCENTAGE OF CHILDREN EXHIBITING INFLAMMATION OF THE GINGIVA OF SOME DEGREE OF SEVERITY (BY GROSS EXAMINATION)
PERCENTAGE OF CHILDREN EXHIBITING AN ENLARGED ANTERIOR CERVICAL GLAND
AVERAGE CLASSIFICATIONS
AVERAGE CLASSES OF EPITHELIAL CELLS FROM ORAL CAVITY
PERCENTAGE OF CHILDREN EXHIBITING SOME DEGREE OF PAPULAR ROUGHNESS OF THE SKIN (BY GROSS EXAMINATION)
PERCENTAGE OF CHILDREN WHOSE SKELETAL MATURITY MATCHED THE CHRONOLOGICAL AGE ACCORDING TO WESTERN RESERVE STANDARDS
MINERAL DENSITY IN GMS OF ASH PER CC. BONE
AVERAGE MINERAL DENSITY OF OS CALSIS
PERCENTAGE OF CHILDREN OF CORRECT WEIGHT FOR THE SEX, AGE, AND BODY BUILD
PERCENTAGE OF CHILDREN REMAINING IN SAME OR PROCEEDING TO A HIGHER AGE SCHEDULE OF DEVELOPMENT (WETZEL GRID) BETWEEN TEST I AND TEST III
TEST I
TEST II
TEST III
INSTITUTION I
INSTITUTION II

FIG. 1. *A comparison of some of the physical observations on children of the two experimental institutions at the time of the respective tests.*

methionine. Almquist *et al.* (17) have reported that soybean protein is slightly deficient in methionine, but complete in all other proteins required by the chick. Baernstein (18) found that the growth rate on the casein diet is faster than that on the protein of peanut supplemented with methionine and tryptophane. The fact that arachin supplemented with methionine and tryptophane fails to promote growth comparable to casein indicates a probable third deficiency in arachin. Koehne (19) found that, if dietary protein is kept too low or if it contains little or no animal protein, body tissues will be metabolized to make good the deficit.

Marrack (20) found that proteins of living cells and of milk and eggs contain more of the indispensable amino acids than do the stored proteins of cereal seed. The needs of growing animals are better supplied by animal than by vegetable proteins. Woods, Beeson, and Bolin (21) found that the Alaska field pea is an excellent source of the amino acids essential for growth, except for methionine.

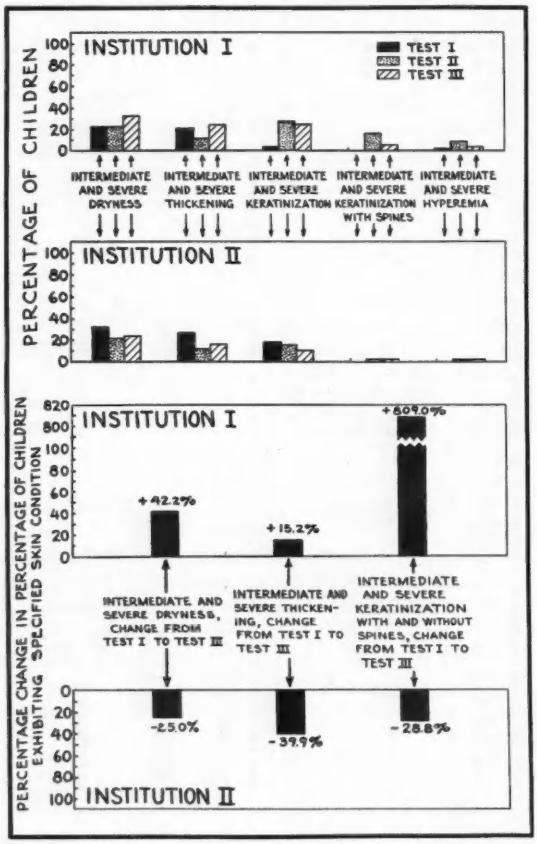
PERCENTAGE OF CHILDREN
INSTITUTION I
TEST I
TEST II
TEST III
INTERMEDIATE AND SEVERE DRYNESS
INTERMEDIATE AND SEVERE THICKENING
INTERMEDIATE AND SEVERE KERATINIZATION
INTERMEDIATE AND SEVERE KERATINIZATION WITH SPINES
INTERMEDIATE AND SEVERE HYPEREMIA
INSTITUTION II
PERCENTAGE CHANGE IN PERCENTAGE OF CHILDREN EXHIBITING SPECIFIED SKIN CONDITION
+42.2%
+15.2%
+609.0%
INTERMEDIATE AND SEVERE DRYNESS, CHANGE FROM TEST I TO TEST III
INTERMEDIATE AND SEVERE THICKENING, CHANGE FROM TEST I TO TEST III
INTERMEDIATE AND SEVERE KERATINIZATION WITH AND WITHOUT SPINES, CHANGE FROM TEST I TO TEST III
-25.0%
-39.9%
-28.8%

FIG. 2. *Results of the biomicroscopic examination of the skin at the three test periods in terms of: (a) the percentage of children exhibiting the designated condition, and (b) the percentage change in the percentage of children showing the respective skin disorders.*

Vickery (22) has stated that experience with a number of purified proteins from animal sources has shown that they contain all of the amino acid components required for growth, for maintenance in health, and for reproduction, if fed to animals at certain levels of intake in otherwise adequate diets. An estimate of the adequacy of some other protein, or protein-rich foodstuff, may therefore be made in terms of one or the other of the better-known proteins employed as a standard. Casein or lactalbumin frequently has been used for this purpose where emphasis has been placed upon freedom from non-protein components in the standard material. Otherwise such materials as whole egg-white protein or meat protein have been employed. The adequacy or inadequacy of a given protein to promote the growth of young animals or to maintain fully grown animals in nitrogen equilibrium has been shown to depend on the composition of the protein with respect to the amino acids it yields. Even if only one of the amino acids known to be essential is supplied in less than optimal quantities, nutritive failure results.

The condition of the soft tissues as found in this study showed various differences between the children of Institutions I and II at the close of the fourteen-month period. Thus the *epithelial cells* in the two groups (from histological slides) showed reduction in cornified or keratinized cells from the first to the second test, with the low meat group increasing between the second and third test, and the higher meat group continuing to improve through the third test (Fig. 1). The difference in liver intake and in the availability of vitamin A from this animal source as compared with vegetable sources containing the carotenes undoubtedly was a factor operative in this respect, since keratinization of the epithelium, according to Wolbach and Bessey (23), is a pathologic lesion characteristic of all vertebrates and is related to vitamin A.

Other evidence of a superior condition of the epithelial tissues in the higher meat group of children at the close of the study was that a lesser percentage showed nasal and ear discharges. The percentage of those exhibiting some degree of xerosis of the conjunctiva was reduced slightly in both groups, with no notable difference between the groups.

Among the most marked differences between the two groups at the close of the study were those of skin condition. Figure 1 shows that the percentage of the children in Institution I (on the low meat intake) who exhibited papular roughness, including some cases diagnosed specifically as acne, increased, whereas the percentage in Institution II decreased throughout the course of the investigation. The biomicroscopic observations confirmed and extended these findings. Figure 2 shows that, with the children in Institution I, skin lesions recorded as intermediate and severe dryness, thickening, keratiniza-

tion with and without spines, and hyperemia tended to increase while those in Institution II showed a decrease of such conditions. These differences in responses to the two types of dietaries were related undoubtedly to multiple factors, including primarily the differences in availability of vitamin A from liver and from vegetable sources and in the fat content of the respective dietaries, which was higher in Institution II where more meat was served.

The condition of the *gingiva* and of the *tongue* improved in both cases, the first about equally for the two groups. A reversal in atrophy of the filiform of the tongue (by gross examination) was considerably greater and in the fungiform slightly greater for Institution II than Institution I (Fig. 1).

The palpable and enlarged condition of certain *glands* improved in both groups. The enlarged condition of the examined glands (anterior and posterior cervical and isthmus of the thyroid), however, was far more markedly reduced in the children on the higher meat intake than in those on the lower. The changes in percentage of children with an enlarged anterior cervical gland initially and finally are shown in Figure 1. This finding is substantiated by Wu and associates (14) who found that, when calculated on the basis of equal body weights, the organs, with the exception of the kidneys, liver, spleen, and testes, of the vegetarian rats were heavier and larger than those of the omnivorous rats. The differences were statistically significant. The thyroid of the vegetarian rat was found to be about three times heavier than that of the control.

In *skeletal status* (Fig. 1) the children were similar in their advance in skeletal maturity, although Institution II surpassed Institution I markedly in the skeletal mineralization function. Thus, the higher meat intake group advanced steadily in skeletal mineralization throughout the fourteen-month period, whereas the low meat group decreased in this factor. McCance, Widdowson, and Lehmann (24) have suggested that very little calcium would be absorbed if the diet contained no protein or amino acids. In spite of a low-calcium but high-protein diet, the Eskimos, who are largely carnivorous, possess excellent teeth and bones. This makes the position of meat in the diet an interesting one, since this food, admittedly a poor source of calcium, may so promote its absorption by providing a plentiful supply of amino acids that it becomes the equivalent of a food rich in calcium. Mellanby (25) observed in the course of investigations of canine rickets that lean meat had a definite anti-rachitic effect.

Shields and associates (26) found that the calcium of milk is better utilized than the calcium of the vegetables which he tested. The constituents of vegetables tend to depress the utilization of the calcium of other foods. Another factor of possible difference in the two groups was the larger intake of vitamin D in the liver ingested by those of Institution II. This could not account for the difference in skeletal mineral density, however, since this amounted during one week to only a fraction of the vitamin D recommendation. Moreover, both groups had similar low potency intakes of vitamin D in liver oils during winter, and both groups played and worked out-of-doors throughout the year.

The *hemoglobin* differences in the two groups of children, favorable to the higher meat institution (Fig. 3 and 4) were consistent with the findings of numerous investigators. Thus Orten and Orten (27, 28) have stated that increasing the intake of either calories or iron has no consistent beneficial effect on hemoglobin formation. Their observations emphasize the importance both of the quality and quantity of protein for hemopoiesis in the rat.

Pearson, Elvehjem, and Hart (29) have stated that, when the dietary protein either is qualitatively or quantitatively inadequate for growth, the rate of hemoglobin production is significantly retarded. They found that the proteins of liver, casein, egg albumin, and soybean oil meal are consistently effective in building hemoglobin. Corn gluten meal and wheat gluten are poorly utilized by the animal both for the formation of hemoglobin and for growth. Animals fed gliadin or gelatin, which are inadequate for growth, rebuild their hemoglobin less rapidly than when fed a protein that permits growth. The

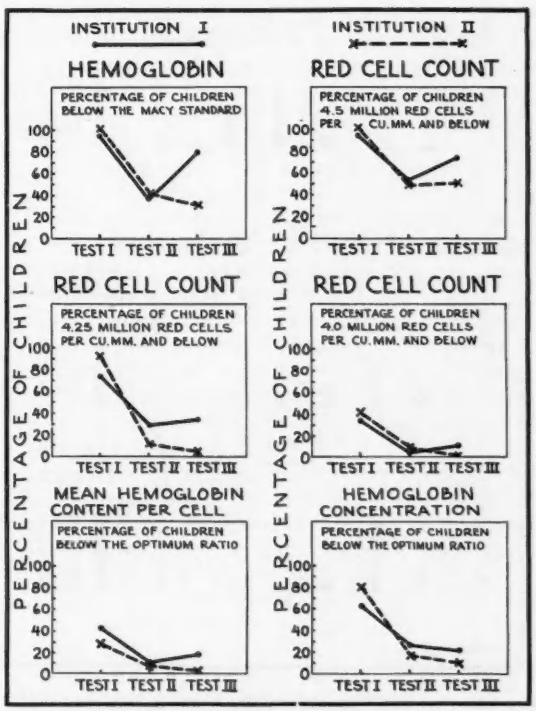
INSTITUTION I
INSTITUTION II
HEMOGLOBIN
PERCENTAGE OF CHILDREN BELOW THE MACY STANDARD
RED CELL COUNT
PERCENTAGE OF CHILDREN 4.5 MILLION RED CELLS PER CU. MM. AND BELOW
RED CELL COUNT
PERCENTAGE OF CHILDREN 4.25 MILLION RED CELLS PER CU. MM. AND BELOW
RED CELL COUNT
PERCENTAGE OF CHILDREN 4.0 MILLION RED CELLS PER CU. MM. AND BELOW
MEAN HEMOGLOBIN CONTENT PER CELL
PERCENTAGE OF CHILDREN BELOW THE OPTIMUM RATIO
HEMOGLOBIN CONCENTRATION
PERCENTAGE OF CHILDREN BELOW THE OPTIMUM RATIO
PERCENTAGE OF CHILDREN
0 20 40 60 80 100
TEST I TEST II TEST III

FIG. 3. *Comparison of Institutions I and II in hemoglobin, red cell count, and calculated hematological values.*

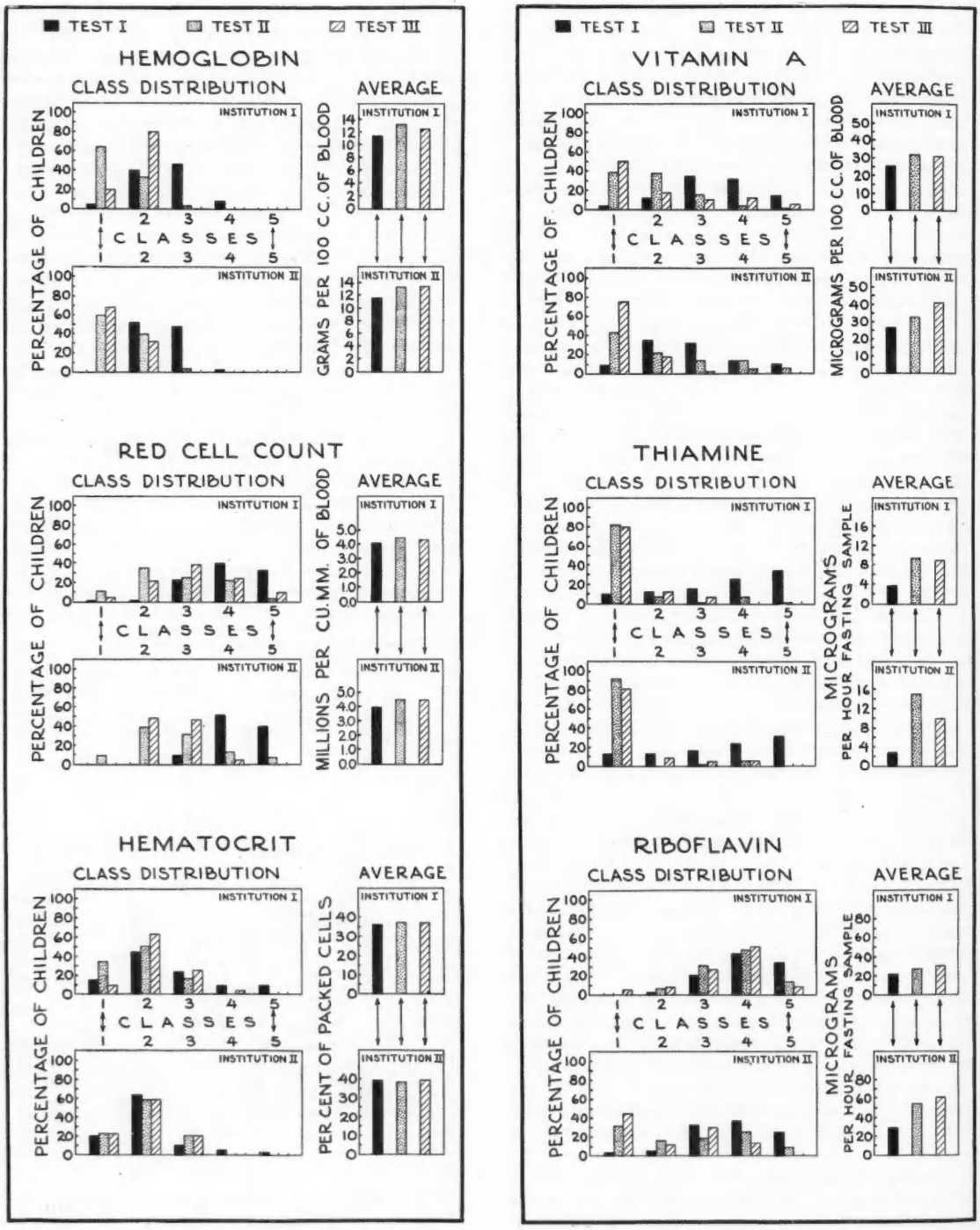

FIG. 4. *Percentage distribution of children in Institutions I and II among arbitrary classes, together with average values for the three test periods for hemoglobin, red cell count, hematocrit, blood plasma vitamin A, and urinary thiamine and riboflavin.*

animal will utilize its own body protein for hemoglobin formation, provided adequate amounts of iron and copper are fed.

Whipple and Robscheit-Robbins (30, 31) found that both striated and smooth muscle are favorable factors to produce blood hemoglobin in anemic dogs. Smooth muscle in general is somewhat more favorable than striated muscle. Whole milk stands at the foot of the class of diet factors which bring about rapid hemoglobin regeneration in severe anemia. Vegetables, dairy products, fish, and many fruits are relatively inert for new hemoglobin production in anemia.

The authors quoted above also found that, in normal growing dogs from weaning to the adult state, there is ample hemoglobin-building material for maintenance but little reserve storage of hemoglobin-producing substances in the standard basal ration. If skeletal muscle is added to the basal ration, however, a considerable reserve store of hemoglobin-producing material is demonstrable. If liver is fed during this growth period, the dog will store a large supply of material out of which new hemoblogin can be produced in an emergency.

Miller, Forbes, and Smythe (32) found that the iron content of rats which had received the meat foods was normal in each case; that the iron content of the rats which received egg was much lower, the iron content of the egg apparently being less efficiently utilized than that of the meats; and that the iron content of the rats which received peanuts was the lowest of all, the iron content of peanuts being especially low. Milk was inferior as a source of dietary iron for growing rats.

Mitchell and Schmidt (33) found that meat, molasses, and ovoferrin are very good sources of iron in regard to availability. Egg yolk and spinach were found to be good sources. Melnick (9) found that complete proteins with respect to their essential amino acid composition are effective in the formation of hemoglobin when adequate quantities of copper and iron are administered. If an inadequate protein diet is consumed in the presence of sufficient quantities of copper and iron, hemoglobin formation occurs, but at a lower rate. Thus, an inadequate protein diet is efficacious in forming hemoglobin only when supplemented by the proper amino acids.

Regardless of what standard was used as the *erythrocyte count* value, below which a subject was regarded as experiencing nutritional anemia, Institution II surpassed Institution I in the reduction of the percentage of children below this level during the course of the study. Dameshek (34) found that, for blood cell formation, the proteins in meat, liver, and yolk of eggs are better than those in milk, cheese, and legumes. The better proteins also contain the largest quantities of iron.

Not only in hemoglobin and erythrocyte counts, but in calculated hematological values, Institution II children exceeded those in Institution I. In *hematocrit*, both groups were relatively high throughout, as noted (Fig. 4).

The *blood plasma vitamin A* level in Institution II showed markedly greater advances than in Institution I (Fig. 4). *Blood plasma carotene* values rose to a higher final level in Institution I, but they had a lower initial level in Institution II and showed a somewhat greater percentage increase, although the differences were not notable in either respect.

Munsell (35) has stated that, when the dietary source of vitamin A is largely from foods containing a high proportion of carotene, the vitamin A allowance should be higher than when it is from foods containing liberal amounts of vitamin A. Morgan (36) has reported that animal vitamin A is three to four times as valuable to sheep, cattle, and horses as an equal quantity of carotene. MacKinney and Sugihara (37) have found that carrots and spinach may have a superior carotene content, but that there still is doubt concerning the relative biologic potencies of the pro-vitamin and vitamin A, in terms of the vitamin A bio-assay.

Marrack (20) has found that an adequate supply of vitamin A in the diet depends both on the preformed vitamin A and on the carotene which is converted into vitamin A in the liver. Preformed vitamin A is absorbed completely, but a considerable amount of the carotene in the food escapes in the feces. The amount thus lost varies; as a rule only one third of the carotene is absorbed and converted into vitamin A, according to this investigator.

Wilson *et al.* (38) have stated that ingested carotene is not changed into vitamin A on a quantitative basis. Absorption of carotene is more nearly quantitative with low than with high intakes. Moreover, a low-fat diet decreases the absorption.

The percentage of children coming within the normal *serum protein* range rose sharply in both institutions in this study. The average in Institution II was slightly higher than that in Institution I. Kerr, Hurwitz, and Whipple (39) have reported that regeneration of serum proteins is more rapid and complete upon a meat or mixed diet as compared with fasting experiments. The same regeneration does not appear to be as rapid upon a bread and milk diet as upon a meat diet.

Leverton, McMillan, and Peters (40) have found that women blood donors who received additional protein from meat showed a slightly greater recovery of serum protein than did those who received additional protein from milk and cheese.

Children in Institution II having values of 5.0 gm. of *serum albumin* and over increased to a greater extent than did those in this group in Institution I. Elman, Brown, and Wolf (41) found that meat *ad libitum* and as the sole source of food corrected the hypo-albuminemia induced in dogs by a three-weeks fast. During the second week of the same diet no

further increase in albumin resulted, but there was an increase in globulin.

Weech and Goettsch (42) compared the potency of beef serum, beef muscle, casein, and wheat gluten in forming serum albumin. The potency values were: beef serum, 0.801; beef muscle, 0.475; casein, 0.388; and wheat gluten, 0.207.

The percentage of children falling below the *optimum albumin-globulin*, or *A/G ratio* was greater in Institution I than in Institution II. Holman, Mahoney, and Whipple (43) have found that the reversal of the albumin-globulin ratio may be observed on the basal diet which is poor in vegetable protein and contains no animal protein. The reversal will always follow plasmapheresis with the dog on the basal diet, and the total plasma protein output will consist approximately of two parts globulin and one part albumin. A liver diet will raise the production and output of albumin and bring the ratio back toward normal. Albumin production actually may exceed globulin output during liver diet periods.

McNaught and co-workers (44) found that soybean meal is utilized with unexpected promptness in forming new plasma protein and favors the production of albumin, in contrast to other plant proteins which distinctly favor globulin production. Pommerenke *et al.* (45) reported that some of the grain proteins appear to favor the production of globulin more than albumin in the plasma. Liver, casein, and beef heart favor the production of albumin more than globulin.

The findings of the last two groups of investigators are distinctly in accord with the results of this study with human subjects, in which there was an increase in the percentage of children in Institution I (high legume dietary, with meat including poultry or fish twice weekly) who fell below the 2.5:1 A/G ratio, with the change resulting from an increase in the globulin values. The children in this group did not have soybeans among their legumes. Those in Institution II (meat ten times weekly), on the other hand, decreased in the percentage falling below the suggested optimum A/G ratio of 2.5:1 because most of the children experienced a greater increase in the albumin than in the globulin fraction.

The children of Institution II, as noted, were somewhat superior in the percentage with *low phosphatase* values (high values denote undue activity of this enzyme), and in *thiamine* excretion; and they were markedly superior in *riboflavin* excretion. The former is in line with their better skeletal mineralization, and the latter with the possibility of the B vitamins from meat being more utilizable.

In *functions*, *reflexes*, and *absence of fatigue*, the superiority of children in the higher meat group was in line with others of the general findings; and the better dark adaptation improvement related to a greater availability of vitamin A in liver than in vegetable sources. While not now regarded solely as a vitamin A function, dark adaptation unquestionably is related closely to this nutrient, provided there are no other limiting dietary factors.

Work by Briggs and co-workers (46–48) has shown that liver contains, in addition to folic acid which has been demonstrated as valuable in some aspects of the nutritional status, new nutrients, possibly other factors of the B-complex as yet not identified chemically but which are related to certain functions in the chick. This suggests that one point of important difference in the two dietaries was the quantity of liver consumed by the two groups.

SUMMARY

Two groups of institutional children of similarly poor initial nutritional status were fed dietaries closely similar except for the fact that one group received meat two and the other ten times weekly, with the former consuming legumes and other vegetable products to an extent which compensated on a calculation basis for the meat. Both dietaries met specified recommendations, and the low meat dietary followed a pattern frequently recommended as a low-cost adequate dietary.

Both groups of institutional children showed improvement in many physical tests, which included medical, dental, laboratory, and functional observations. The children on the low meat dietary failed to surpass those on the higher meat intake in any respect for which records were made. Those on the higher meat dietary, however, were superior in epithelial cell condition; in condition of the skin; in reversal of atrophy of the filiform and fungiform of the tongue; in reduction in enlargement of certain glands; in skeletal mineralization; in age schedule of development (growth), according to the Wetzel Grid; in hemoglobin; in red cell count; in level of blood plasma vitamin A; in certain serum protein fraction relationships; in blood phosphatase; in urinary excretion of thiamine (slightly) and of riboflavin (markedly); in reflexes; in absence of fatigue; and in dark adaptation.

The findings demonstrate the desirability of considering more than the numerical results of a calculation from tables of averages in making dietary recommendations for growing children.

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The Bland Diet in Ulcer Therapy

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In 1944–45, Project No. 3 of the Diet Therapy Section was undertaken to ascertain some of the current practices regarding the bland diet. A survey of eighty hospitals showed that there is a wide divergence of opinion as to what constitutes a bland diet and for what the diet is used. As a result, it was decided that the project be continued to further clarify the meaning and composition of the bland diet. The chairman wishes to express her appreciation to the following individuals and oganizations who cooperated in some phase of the work: Dorothy Kinnear, Martha K. Moore, Sister Miriam Eveline Schneider, Norma Nelson, Illinois Dietetic Association, Colorado Dietetic Association, and the New York State Dietetic Association.

THE BLAND diet is a term generally interpreted to mean a diet which is mechanically, chemically, and thermally non-irritating. It has been defined in the "Glossary of Dietetic Terms" prepared by a committee of the Diet Therapy Section of the American Dietetic Association (1) as "an allowance of food and drink which may be modified *in consistency*, by reducing the indigestible carbohydrate and connective tissue; *in flavor*, by elimination of extractives, spices, condiments except salt, strongly flavored foods, and stimulants; and *in preparation* by allowing only cooked foods and moderately hot and cold foods and by eliminating fried foods."

A survey of commonly used textbooks (2–15) indicated that a bland diet may be prescribed for various diseases of the gastrointestinal tract, such as spastic constipation, diarrhea, hypochlorhydria, achlorhydria, achylia gastrica, hyperchlorhydria, gastritis, colitis, diverticulitis, jaundice, cancer of the stomach, hemorrhoids, peptic ulcer, and other cases following surgery of the gastrointestinal tract. Since such a variety of conditions may be treated with this diet, many variations have developed which have lead to serious confusion.

It is desirable, therefore, to clarify the principles of the bland diet in order to make adaptations appropriate to the variety of conditions for which it is prescribed. A consideration of the principles of diet to be used in various gastrointestinal diseases can be illustrated in the treatment of peptic ulcer, since a diet is necessary in this case that is mechanically, chemically, and thermally non-irritating.

Sippy (16) outlined the principles of the treatment of peptic ulcer over thirty years ago, and his regimen with some variations has been the basis for ulcer therapy ever since. The theory of healing the ulcer has been to bring about as much rest and relief to the irritated area as possible. It follows, therefore, that any *mechanical* irritation to the gastrointestinal tract and the ulcerated area in particular should be avoided. Ivy (17), working on rabbits, has confirmed the importance of this factor. He showed that the healing of experimental ulcers in rabbits was delayed when they were fed a diet of hay, oats, and raw carrots. The mechanical factor apparently worked through trauma, interfering with the healing process in the base of the ulcer and by causing local edema, bleeding, or congestion. Also, the fact that coarse particles of food remain in the stomach longer and act as mechanical stimulants to gastric secretion, constitutes another reason for avoiding large amounts of indigestible carbohydrate or connective tissue and for masticating the food well.

Consideration for this factor may be made by alteration in the *consistency* of diet through a reduction in the indigestible carbohydrate in plants and the connective tissue in meat and poultry. In plants, the cellulose, hemicellulose, lignin, pectic substances, gums, and mucins are the indigestible substances which form the cell walls. A reduction of these substances may be effected by the use of refined breads and cereals and immature vegetables and fruits from which the skins and seeds have been removed. During cooking, both the pectic substances and the cellulose are disintegrated. For this reason, cooked vegetables and fruits are generally used instead of the raw. A still greater reduction in indigestible carbohydrates may be obtained by the use of strained or sieved vegetables and fruits or by the use of the juice of the vegetable or fruit instead of the solid portions.

Whether meat is tender or less tender depends on the relative amount of connective tissue present and

the use of low-temperature cookery, in order to reduce or lessen the toughening or hardening of soluble proteins (1). In cuts containing large amounts of connective tissue, a greater degree of tenderness may be achieved by cooking with moist heat. This will result in the conversion of the collagen in the connective tissue to gelatin.

Chemical irritation may be combatted chiefly through neutralization and/or reduction of the gastric acidity. This has been the generally accepted aim of ulcer therapy in resting the gastrointestinal tract, since the corrosive action of the gastric acidity has been shown to prevent healing of the ulcer as well as to cause pain and discomfort to the patient. It has been shown (18) that undue and prolonged acceleration of acid secretion in the stomach results in hyperemia and engorgement of the mucous membranes, and when in this state it is extremely susceptible to injury. Continued contact of the mucosa with a minor erosion to acid gastric juice results in the formation of an ulcer.

The effectiveness of the diet can be brought about through the buffering of acid with frequent small feedings, the use of a highly nutritious diet to promote healing, and by taking advantage of the inhibitory action of fat on the gastric secretions (19). Neutralization of the gastric juice through the use of foods can be brought about through the use of proteins and fats. Milk, cream, meat, and eggs are particularly valuable for their buffering and neutralizing properties. Although some stimulation can be expected from meat extractives, the protein and fat contributes to the neutralization and reduction of acidity. According to Ivy (19), the mechanism for the formation of hydrochloric acid is specific for the parietal cell of the stomach; and some substance is needed which blocks this mechanism. Enterogastrone may be such a substance. It has been shown to be effective in the inhibition of gastric secretion and motility. Enterogastrone is an autocoid or substance which is produced by the intestinal mucosa in the presence of adequate concentrations of fat and sugar in the chyme and which inhibits gastric secretion and motility. Fat in the diet, therefore, acts as a stimulant to enterogastrone which in turn inhibits the flow of gastric secretion.

Those foods which are considered to have an unusually stimulating effect on gastric secretion include highly flavored foods, sour foods, coffee, tea, and cola beverages. Alcohol and tobacco, though not foods, are also restricted because of their stimulating effects on gastric secretion.

Strongly flavored vegetables—i.e., onions, leeks, radishes, vegetables of the cabbage family, such as Brussels sprouts, cauliflower, broccoli, and turnips, as well as dried beans—are usually omitted. These vegetables contain sulphur, some of which is in the form of the glucoside, sinigrin. This glucoside yields, upon hydrolysis, glucose, potassium acid sulphate, and allyl-isothiocyanate, a volatile oil of mustard with an irritating odor. This latter substance yields allylamine, a strong-smelling substance, and hydrogen sulphide. Proper preparation of the vegetables, which prevents the decomposition of the glucoside, is recommended. Heating the vegetable quickly to destroy enzymes, using an uncovered kettle to allow escape of volatile substances, cooking for as short a time as possible, and serving as soon as possible after preparation are procedures recommended for the best preparation of vegetables of the strongly flavored type (20). Clinically, it has been found that many patients can and do eat some such vegetables without particular discomfort if the vegetables are properly prepared (21).

The sour foods, such as citrus fruit juices and tomato juice, have an important consideration, in addition to their acidity, in that their inclusion insures a reliable food source of ascorbic acid. Since this vitamin has been found to be closely related to the incidence and rate of wound healing, it should be incorporated in therapy. Furthermore, experimental evidence (22–24) has shown that orange juice has little effect on the gastric acidity and, if anything, will lower it. If the patient feels any discomfort, these juices can be diluted and given after other food has been eaten rather than being introduced on an empty stomach.

The beverages which cause unusual stimulation to the gastric secretion include coffee, tea, and cola beverages. These drinks contain alkaloids such as trimethylxanthine (caffeine), xanthine, and hypoxanthine. Merendino *et al.* (25) and Roth and Ivy (26, 27) have demonstrated the effects of caffeine in both animals and man and have used it as a means of producing ulcers experimentally. They have shown that it produced a stimulatory effect on gastric secretion and increased the volume of gastric acidity, as well as bringing about a hyperemic, succulent mucosa which was more susceptible to ulcer formation. In addition to the caffeine, coffee and other roasted beverages, such as decaffeinated coffees and cereal beverages, contain secretogogues from the roasting process and/or irritant volatile oils which also stimulate gastric secretion. However, the addition of milk and cream to the beverages resulted in distinctly less gastric secretion than with black coffee. While it is customary to reduce the amount of such beverages, it is not usually considered necessary to eliminate them entirely.

Condiments and spices also contain irritant volatile oils and their use is generally avoided. Whether small amounts of cinnamon and nutmeg as used for flavoring can be sufficiently irritating to be an important factor is not entirely clear. Other foods which are considered by some clinicians to be unnecessary and possibly irritating are candy, jams, jellies, honey, and fried foods.

Frequent feedings, first beginning with hourly feedings and reducing them to six feedings a day, are also advocated for decreasing the gastric acidity.

Thermal irritation is concerned with extremes of hot and cold foods. It has been shown by Kuenzel and Todd (28) that heat induces an intensely active stomach of small dimensions. Clinton and Adler (29) found that chilling caused an increase in the severity of the ulcer syndrome; the volume of the acid was greater and the degree of total and free acidity was increased. As well as increasing the symptoms of an already-present ulcer, they believe that lowered temperatures precipitated the syndrome by disturbing the neutralizing mechanism of the gastric and duodenal secretion. Ingelfinger (30) advised avoiding excessively hot or cold foods because of mucosal and vascular changes which occurred with a sharp increase or decrease in temperature. Horton (31) has likened the effects of cold to that of histamine on the gastric mucosa. Injections of histamine caused an increased secretion of gastric juice with a large proportion of acid and small amounts of pepsin and mucin. He has found that excessive cold creates the same symptoms. For these reasons, it is customary to avoid iced beverages and extremely hot foods in ulcer therapy.

Good nutrition is of particular importance to the ulcer patient, for a close correlation has been established between wound healing and nutrient intake, particularly protein and certain vitamins. The early part of the Sippy regimen as practiced by many was neither adequate in protein or other nutrients. Deficiencies of ascorbic acid and the B-complex have been demonstrated (32–36). It has also been stated that ulcer patients may have a pellagrous type of deficiency if they restrict meat and green vegetables for a prolonged period of time. Furthermore, when patients receive intensive alkaline therapy, they have been shown to have chemical evidence of a deficiency of thiamine (33).

While it is possible to plan a bland diet that meets the recommended allowances for normal individuals established by the Food and Nutrition Board of the National Research Council (37), it may be desirable

TABLE 1

*Nutritive content of bland diet**

DAILY FOOD INTAKE	QUANTITY		MINERALS		VITAMINS					FOODSTUFFS			CALORIES**
	Weight	Approximate measure	Calcium	Iron	A	Ascorbic acid	Thiamine	Riboflavin	Niacin	Carbohydrate	Protein	Fat	
	gm.		*gm.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*	*gm.*	*gm.*	*gm.*	
Milk	960	1 qt.	1.12	0.8	1640	8	0.40	1.72	1.20	48	34.0	36	640
Eggs	100	2 medium	0.06	2.8	990		0.14	0.36			13.0	12	160
Meat, poultry, or fish, cooked†	100††	4 oz. raw weight E.P.	0.01	3.3	2807	2	0.28	0.37	5.90	1	23.0	13	210
Potato, cooked	100	1 medium	0.01	0.7	35	8	0.08	0.03	1.00	19	2.0		85
Vegetable, green or yellow, cooked‡	100	1 serving	0.10	1.4	4870	23	0.05	0.17	0.60	6	2.0		30
Vegetable, other, cooked‡‡	100	1 serving	0.01	0.7	495	9	0.08	0.04	0.62	8	1.7		40
Fruit juice, citrus	100	½ cup	0.02	0.4	180	42	0.07	0.03	0.20	11	1.0		50
Fruit, other, cooked, sweetened§	100	1 serving	0.01	0.2	670	3	0.02	0.02	0.28	20	0.4		85
Bread, enriched	180	6 slices	0.10	3.2			0.42	0.28	3.96	90	15.0	6	480
Cereal, refined	20	½ cup	0.01	0.6			0.06	0.04	0.60	15	2.5		80
Butter or enriched margarine	20	4 teaspoons			640							16	140
Sugar	15	3 level teaspoons								15			60
Total.....			1.45	14.1	12,327	95	1.60	3.06	14.36	233	94.6	83	2060

* As given in the *Diet Therapy Handbook*, p. 25 (1).

** Calories have been rounded off to nearest 5.

† The evaluation is based on the use of 100 gm. liver, 250 gm. pork or ham, 150 gm. fish, and 500 gm. beef, veal, lamb, or fowl per ten-day period.

†† Weight after cooking.

‡ The vegetables included in this group are asparagus, green beans, carrots, yellow squash, pumpkin, spinach, and other greens.

‡‡ The vegetables included in this group are beets, peas, summer squash, and tomato juice or tomato purée.

§ The cooked fruits included in this group are applesauce, pear, peach, apricot, plum, and sweet cherries.

to make use of an increased protein and vitamin intake. The favorable results of the Co Tui regimen (34) with a high protein and adequate caloric intake may indicate the importance of these factors. If alkaline therapy is used, it may also be desirable to consider the use of increased amounts of those nutrients destroyed in alkaline medium.

The nutrient content of the bland diet depends not only on the kind of foods used, but on the amounts used in the daily food intake. In Table 1 the nutrient content of each food and food group used in the daily food intake on a bland diet has been enumerated. This plan, which is taken from the *Diet Therapy Handbook* (1) contains approximately 2000 calories, 95 gm. of protein, and a higher-than-usual content of minerals and vitamins. It is not intended, however, that this exact list of foods be used in all cases. Since the nutrient content of each food and food group has been enumerated, it will be possible to make appropriate adaptations of any of the components to meet the needs of the individual patient. Further details concerning the bland diet may be found in the *Annual Reports and Proceedings* (38).

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Thiamine Retention in the Baking of Muffins and Biscuits[1]

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IN REVIEWING the literature on the thiamine content of breads of various kinds, only one report on muffins was found. Fincke and Little (1) assayed wheat germ muffins by the rat-curative method and concluded that the presence of baking powder induced a 26 per cent loss of thiamine during baking as compared to those which contained no baking powder.

Somewhat more extensive research has been done on biscuits. In 1942, Barackman (2) found the thiamine retention during baking to be better when biscuits were made with milk rather than with water, when the reaction was less alkaline, and when thicker, less crusty biscuits were made. Williams and Fieger (3) in 1944 reported that the destruction of thiamine in the baking of biscuits was independent of the addition of shortening and of the source of the vitamin (enriched flour or rice polish) but was related to the *p*H value of the dough. Melnick, Oser, and Hochberg (4) in 1945 compared the thiamine retention in biscuits made with various types of baking powder, including some of higher calcium content. It was found that this higher calcium baking powder was not more destructive of thiamine than were other types.

Recently Briant and Hutchins (5) have reported the influence of various liquids and leavening on the thiamine retention in baking powder biscuits. It was found that retentions of 75 per cent or less were obtained when tartrate or phosphate baking powder or excess soda was used. An increase of 50 per cent in the amount of sodium aluminum sulphate-phosphate baking powder reduced the thiamine retention from 86 to 80 per cent. With increasing amounts of soda but with the same amount of lactic acid, thiamine retention varied from 84 to 15 per cent. Fresh milk not only gave slightly higher thiamine retention but better quality biscuits than did evaporated milk, reconstituted dry milk, or water.

Since muffins are a favorite hot bread, these experiments were designed to study the concentration of thiamine and its stability in both plain and whole whole wheat muffins. In addition, it seemed desirable to include the effect of additional acid on muffins and biscuits.

EXPERIMENTAL PROCEDURE

Preliminary work. Several experiments were necessary to learn the extent to which acid (in the form of calcium monophosphate, cream of tartar, or cultured buttermilk) might be increased yet not have a marked deleterious effect on the texture and flavor of the quick breads. A group of students and instructors served as a scoring panel in this work. Their evaluation of the muffins and biscuits as acceptable products was the basis for the various modifications of the recipes used.

Baking of muffins. The muffin formula contained: 108 gm. flour, 5.5 gm. baking powder, 12 gm. sugar, 1 gm. salt, 24 gm. whole egg, 115 gm. milk, and 10 gm. refined cottonseed oil. A total of twenty-five strokes were necessary to combine the ingredients. Four muffins of 60 gm. each were baked from one batter at 400°F. for 27 min.

In Series *1*, eleven bakings were made. Each baking included:

(a) A control containing a sodium aluminum sulphate-phosphate baking powder.

(b) Substitution of cultured buttermilk for sweet milk.

(c) The addition of cream of tartar in the amount of 1 per cent of the weight of the flour (1 gm. per recipe).

(d) The addition of calcium monophosphate in the amount of 0.25 per cent of the weight of the flour (0.25 gm. per recipe).

In Series *2*, the variations were:

(a) A control as in Series *1*.

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(b) Substitution of a tartrate baking powder.

(c) Substitution of a cultured buttermilk as in Series *1*.

(d) Substitution of whole wheat flour for 50 per cent of the flour.

(e) Substitution of whole wheat flour for 50 per cent of the flour and of cultured buttermilk for sweet milk.

Six replicate bakings were analyzed.

Baking of biscuits. The formula used for the biscuits was: 224 gm. flour, 8 gm. baking powder, 2 gm. salt, 50 gm. shortening (modified lard), and 150 gm. milk. The biscuits were $\frac{7}{16}$ in. thick and 2 in. in diameter and were baked 14 min. at 450°F.

The series of ten bakings included in each:

(a) A control containing a sodium aluminum sulphate-phosphate baking powder.

(b) Substitution of cultured buttermilk for sweet milk.

(c) The addition of cream of tartar in amount of 1 per cent of weight of flour (2.24 gm. per recipe).

(d) The addition of calcium monophosphate to the amount of 0.25 per cent of the weight of the flour (0.55 gm. per recipe).

For both biscuits and muffins certain procedures and ingredients were the same. Weight loss was calculated from the weight before baking and the weight after being baked and cooled. Since variations in oven heating may occur to influence thiamine destruction, the positions of any one variety of muffins or biscuits in the tins and in the oven were rotated in such way as to equalize any such influence. The enriched flour used for all bakings was a bleached general purpose patent flour. The whole wheat flour was a finely ground product.

Analytical methods. For the *p*H determinations, a 20-gm. sample, including comparable portions from each of the muffins or biscuits of the same type from one baking, was ground in a mortar with 25 ml. distilled water. A glass electrode, Beckman *p*H meter was used.

For the thiamine determinations, a representative sample was blended with 2 N H_2SO_4, then diluted to give a 0.1 N acid concentration and hydrolyzed overnight at 50°C. before incubation with clarase. The thiochrome method of Hennessy and Cerecedo (6) with certain modifications was used for these analyses.

TABLE 1

Thiamine content and pH *of muffins*

VARIATIONS IN INGREDIENTS	*p*H VALUES		THIAMINE IN MUFFINS	
	Range	Average	Range	Average
			mg./100 gm.	*mg./100 gm.*
Series *1*				
Control	6.9–7.4	7.3	0.176–0.224	0.196
Buttermilk	5.9–6.8	6.2	0.180–0.230	0.203
Cream of tartar added	6.4–6.9	6.6	0.180–0.231	0.198
Calcium monophosphate added	5.9–7.2	6.8	0.168–0.209	0.192
Series *2*				
Control	6.2–6.8	6.5	0.179–0.207	0.195
Tartrate baking powder	6.4–6.8	6.6	0.179–0.208	0.194
Buttermilk	5.6–5.8	5.7	0.196–0.226	0.209
Whole wheat flour	6.6–6.9	6.7	0.198–0.223	0.209
Whole wheat flour and buttermilk	5.6–6.0	5.8	0.198–0.224	0.213

RESULTS AND DISCUSSION

In Table 1 are presented the data on the thiamine content of muffins and the *p*H obtained for each variation. The thiamine content of muffins was found to be 0.19 to 0.21 mg. per 100 gm., whether made with enriched flour alone or with half whole wheat flour. Thus, a serving of two muffins made from this recipe would contribute one seventh of the thiamine intake recommended for an adult by the National Research Council.

The data on the retention of thiamine in the baking of muffins are presented in Table 2. No significant difference was shown between the two types of baking powder. Although there was slightly less thiamine in the batter when 50 per cent of whole wheat flour was used, the loss in baking was somewhat less for the whole wheat muffins. There was

TABLE 2

Thiamine retention in the baking of muffins of Series 2

VARIATIONS IN INGREDIENTS	THIAMINE IN MUFFIN BATTER†	LOSS OF WEIGHT IN BAKING	THIAMINE IN MUFFINS AS ANALYZED	THIAMINE CALCULATED TO ORIGINAL WEIGHT OF MUFFIN	THIAMINE RETENTION
	mg./100 gm.	%	*mg./100 gm.*	*mg./100 gm.*	%
Control	0.183	17.5	0.195	0.156	85.3
Tartrate baking powder	0.183	17.5	0.194	0.155	84.9
Buttermilk	0.182	16.8	0.209	0.169	92.6*
Whole wheat flour	0.175	16.6	0.209	0.169	96.3**
Whole wheat flour and buttermilk	0.172	15.6	0.213	0.175	99.1**

† Calculated from the analyses of the milk, eggs, and flour, for which the values obtained were:

Milk: 0.032 mg./100 gm.

Eggs: 0.074–0.084 mg./100 gm.

Enriched flour: 0.364–0.482 mg./100 gm.

Whole wheat flour: 0.350–0.394 mg./100 gm.

* Statistically significant difference from control.

** Highly significant difference from control. The difference between the buttermilk muffins and buttermilk-whole wheat flour muffins, 6.5, was not quite great enough to be statistically significant. A difference between averages of 7 is required for these data.

less loss in baking when cultured buttermilk was used with baking powder in either plain or whole wheat muffins. Therefore, the thiamine retention in baking recorded in the last column of Table 2 was significantly higher for the whole wheat muffins and when buttermilk was used. These conclusions were verified by using the statistical method of analysis of variance (7) as indicated in the footnote of Table 2.

For biscuits, on which the data are given in Table 3, the thiamine content was 0.22 mg. per 100 gm. in all types. This is comparable to the highest values reported by Melnick, Oser, and Hochberg (4) on "fresh" biscuits.

TABLE 3

Thiamine content and pH of biscuits

VARIATION IN INGREDIENTS	pH VALUES		THIAMINE	
	Range	Average	Range	Average
			mg./100 gm.	*mg./100 gm.*
Control	6.7–7.0	6.9	0.181–0.248	0.220
Buttermilk	5.8–6.1	5.9	0.189–0.262	0.221
Cream of tartar added	5.8–6.1	6.0	0.189–0.263	0.218
Calcium monophosphate added	6.5–7.0	6.6	0.189–0.258	0.217

Preliminary studies had shown that a relationship exists between the *pH* and the character of muffins and biscuits. In both products the *pH* could be lowered to *pH* 5.6–6.1 by substituting cultured buttermilk for sweet milk in the original recipes. These were scored high in flavor and tenderness by the panel of judges. However, it should be noted that the muffins varied from the standard set for sweet milk muffins in that they were slightly smaller in volume, had a rough dry surface, and tended toward the waxy texture typical of the low *pH* products. Biscuits having a *pH* less than 5.6 were rated low in flavor and texture by the panel. Because of the tendency to give slightly less desirable products when additional acid was used, such a procedure did not offer any great advantage, since it was found that a *pH* of about 7 and a good potency of thiamine could be obtained in a normal recipe using sweet milk and baking powder.

However, the marked influence of whole wheat flour in retaining thiamine during baking prompts the recommendation that it be given wide usage. Especially will that be true in cases where non-enriched flour is in use and, thus, less thiamine present in the baked products. The advantage of whole wheat has been long recognized, especially in bread, but heretofore, no data were available on its thiamine contribution in muffins where baking powder leavening is present. Muffins made from enriched or whole wheat flour may, thus, make a definite contribution to the thiamine content of the American diet.

SUMMARY

The *pH* and thiamine retention during baking of muffins and biscuits were determined in a sweet milk baking powder product and when additional acid of various types was present.

Muffins made with either enriched flour or 50 per cent whole wheat flour contributed about 0.2 mg. thiamine per 100 gm. A similar value was obtained for biscuits.

Although there was slightly less destruction of thiamine in many cases when more acid was used, smaller volume and a slightly waxy texture sometimes resulted.

Whole wheat flour in muffins, however, retained thiamine in baking to a significantly greater degree and, hence, is to be encouraged, especially if non-enriched white flour is commonly used.

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No Problem of Plate Waste

One Army mess sergeant's report on food waste always read, "No waste but bones." When asked to account for this excellent record of his group, he explained, "When they get through, I makes them show me their plates. If there's any food left, I tells them, 'You go back and bolt down every scrap of that good chow your Uncle Sam gives you,' and they does. Why do I do that? Because regulations say I gotta report percentage of potatoes, percentage of beans, percentage of everything they don't eat, and when I was a kid in school I never got as far as percentage."—*New York Times.*

Retention of the B Vitamins in Beef and Lamb After Stewing[1]

III. Pantothenic Acid

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THE MEAT was prepared and cooked as described in the first report of this series (1). The pantothenic acid phase of the study is reported here.

Pantothenic acid was determined on papain-takadiastase extracts from which the fat had been removed with chloroform and the proteins by precipitation at *p*H 6.8 to 7.0. The microbiological procedure of Strong and co-workers (2) was used with the foregoing modifications in the preparation of the sample to eliminate the effect of foreign growth stimulants.

CONTENT

The average pantothenic acid content for raw meat and for meat cooked by the twelve stewing methods is given (Table 1).

The pantothenic acid content of raw beef ranged from 3.51 to 5.24 mcg. per gram on the moist basis. These values fall within the lower range for beef (2.1 to 13.0 mcg. per gram) reported by Cheldelin and Williams (3); Cheldelin and Williams (4); Cover *et al.* (5); Waisman and Elvehjem (6); and Waisman and co-workers (7). The average of 4.23 mcg. per gram from the mixed muscles of brisket were similar to the averages of 3.1 and 4.9 mcg. per gram for raw beef ribs obtained by Cover *et al.* (5).

The pantothenic acid content of raw lamb obtained from the mixed muscles of the triangle ranged from 4.77 to 5.72 mcg. per gram and averaged 5.09 mcg. per gram on the moist basis. They are within the range of 4.3 to 13.0 mcg. per gram reported by Cheldelin and Williams (3); Cheldelin and Williams (4); Waisman and Elvehjem (6); and Waisman *et al.* (7).

[1] Received for publication March 27, 1947. Supported in part by a grant from the National Live Stock and Meat Board.

RETENTION

Retentions were calculated on the dry, fat-free basis. The average pantothenic acid retention of each of the twelve stews is given (Table 2). Average retention in the meat without broth varied between 32 and 51 per cent among the various cooking procedures. In the broth, the range is from 22 to 51 per cent.

When the average total retention of pantothenic acid among the different stewing procedures was considered, the variation ranged from 67 to 97 per cent. Analyses of variance were made between the dry, fat-free values for raw meat and those for cooked meat plus broth. F values of 265.22 and 50.06 for beef and lamb respectively were obtained. To be highly significant at the 0.01 level, a value of 16.26 was required. Thus it may be seen that the difference was highly significant for both beef and lamb. In general, then, the loss of pantothenic acid during stewing was a real one.

The mean difference between raw meat and cooked stew was computed for each stewing method (Table 2). In beef, significant differences occurred with eleven of the twelve methods, with ten of them highly significant. In lamb, differences which were significant occurred with ten out of the twelve methods, but none of them was highly significant.

A summary of retention by cooking processes is given (Table 3). An analysis of variance was used to show loss of pantothenic acid.

Browning did not affect the pantothenic acid content in the meat of either beef or lamb stew, but in the broth the difference between light and brown stews was significant from a statistical standpoint (Table 3). The effect of browning on total content also was significant. The brown stews contained about 10 per cent less total pantothenic acid than the light stews (Table 4).

Temperature of cooking caused differences in the content of the pantothenic acid in the meat of both beef and lamb stews (Table 4). These differences were significant from a statistical point of view. The data showed that pressure-cooked stews of beef and lamb contained respectively 22 and 13 per cent more pantothenic acid in the meat than the boiled stews (Table 4). The small difference in the broth was not significant in beef though it was in lamb (Table 3). When total content was considered, the effect of temperature was significant in the beef stews but not in lamb stews, since retention in lamb broth did not parallel that in meat. The pressure-cooked stews of beef and lamb contained respectively 15 and 4 per cent more total pantothenic acid than the boiled stews (Table 4). The percentage difference in total pantothenic acid in beef was somewhat above and that for lamb was well within the allowance usually given for experimental error. It may be assumed that total retention was affected by temperature in beef stews but not in lamb stews. Frost (8) found the rate of destruction of pantothenic acid in the presence of moisture to be a function of temperature. The difference between lamb and beef in the effect of temperature on pantothenic acid retention was in marked contrast to the lack of any such effect on retention of thiamine. These findings indicate a need for a thorough study of the relationship between time and temperature on the loss of pantothenic acid under conditions similar to those encountered during the cooking of natural foods.

The *amount of water* in which the stews were cooked caused significant changes in both meat and broth of beef stews, but these changes were in opposite directions and the difference in total content was not significant (Table 3). In lamb the averages showed the same trend though it was not great enough to be statistically significant in either the meat or the broth. The data showed that the stews with a small amount of water contained more pantothenic acid in the meat (14 and 21 per cent for beef and lamb, respectively) than those with a large amount of water (Table 4). However, the broth content was reversed, and the stews with the large amount of water contained more total pantothenic acid (60 and 20 per cent for beef and lamb, respectively) than those with the small amount of water.

The total quantity of pantothenic acid found in the cooked stews was divided about equally between the meat and the broth when the large amount of water was used (Table 5). The difference in content between the meat and broth was not statistically

TABLE 1

Pantothenic acid content of beef and lamb stews

VARIABLES	PANTOTHENIC ACID*							
	Beef				Lamb			
	Moist basis	Dry, fat-free basis			Moist basis	Dry, fat-free basis		
	Meat	Meat	Broth	Meat and broth	Meat	Meat	Broth	Meat and broth
	mcg./gm.	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*
Raw	4.23	20.48			5.09	25.84		
Cooked with a large amount of water								
Browned								
Pressure-cooked	3.04	9.13	8.70	17.83	3.43	10.71	7.71	18.42
Boiled	2.18	6.96	7.94	14.90	2.75	9.00	8.90	17.90
Simmered	2.29	7.49	8.73	16.22	2.51	8.29	9.14	17.43
Not browned								
Pressure-cooked	2.96	9.40	10.35	19.75	3.25	10.31	9.80	20.11
Boiled	1.97	6.79	9.80	16.59	2.64	8.98	10.60	19.58
Simmered	2.49	8.19	9.44	17.63	2.86	10.00	10.92	20.92
Cooked with a small amount of water								
Browned								
Pressure-cooked	3.23	9.66	5.32	14.98	4.37	13.29	6.81	20.10
Boiled	2.76	8.64	5.06	13.70	3.26	10.36	7.70	18.06
Simmered	2.93	9.20	4.58	13.78	3.66	11.43	6.27	17.70
Not browned								
Pressure-cooked	3.07	9.54	7.16	16.70	3.53	11.04	8.61	19.65
Boiled	2.71	8.67	6.38	15.05	3.60	11.65	8.32	19.97
Simmered	2.77	9.17	5.91	15.08	3.41	11.34	9.74	21.08
Average for all cooked stews				16.01				19.25

* Each value for raw meat was the average of four samples for each of six replicates. Each value for cooked meat was the average of six replicates.

TABLE 2

Retention of pantothenic acid during stewing of beef and lamb

VARIABLES	PANTOTHENIC ACID RETENTION*							
	Beef				Lamb			
	Retention†			Mean difference between raw meat and cooked stew‡	Retention†			Mean difference between raw meat and cooked stew‡
	Meat	Broth	Total		Meat	Broth	Total	
	%	%	%	*mcg./gm.*	%	%	%	*mcg./gm.*
Cooked with a large amount of water								
Browned								
Pressure-cooked	45	42	87	−2.65*	41	30	71	−7.42*
Boiled	34	39	73	−5.58**	35	34	69	−7.94*
Simmered	37	43	80	−4.26**	32	35	67	−8.41*
Not browned								
Pressure-cooked	46	51	97	−0.73	40	38	78	−5.73*
Boiled	33	48	81	−3.89**	35	41	76	−6.26*
Simmered	40	46	86	−2.84**	39	42	81	−4.92
Cooked with a small amount of water								
Browned								
Pressure-cooked	47	26	73	−5.50**	51	26	77	−5.74*
Boiled	42	25	67	−6.78**	40	30	70	−7.78*
Simmered	45	22	67	−6.70**	44	24	68	−8.14*
Not browned								
Pressure-cooked	47	35	82	−3.78**	43	33	76	−6.19*
Boiled	42	31	73	−5.43**	45	32	77	−5.87*
Simmered	45	29	74	−5.40**	44	38	82	−4.76
Average for all stews			78				75	

† Percentages were calculated on dry, fat-free basis. Each value is an average of six replications.

‡ Pantothenic acid content of meat plus broth minus that of raw meat.

* Significant difference. Mean differences required for significance at 0.05 level: beef, 1.72; lamb, 5.55.

** Highly significant difference. Mean differences required for high significance at 0.01 level: beef, 2.70; lamb, 8.71.

TABLE 3

Average retention of pantothenic acid according to cooking variables and statistical evaluation of findings

VARIABLES	AVERAGE PANTOTHENIC ACID RETENTION						F VALUE†					
	Meat		Broth		Total		Meat		Broth		Total	
	Beef	Lamb	Beef	Lamb	Beef	Lamb	Beef	Lamb	Beef	Lamb	Beef	Lamb
	%	%	%	%	%	%						
Browned	42	41	33	30	75	71	1.08	0.00	179.35**	30.25**	84.90**	27.16**
Not browned	42	41	40	37	82	78						
Pressure-cooked	46	44	39	32	85	76	13.34**	12.39**	2.02	10.56*	7.71*	1.26
Boiled	38	39	36	34	74	73						
Simmered	42	40	35	35	77	75						
Large amount of water	39	37	45	37	84	74	7.92*	6.22	13.41**	1.40	4.45	0.04
Small amount of water	45	45	28	31	73	76						

† Calculated from dry, fat-free content of cooked meat. Error terms were the first order interactions of the variables x replicates.

* Significant F values needed at the 0.05 level were: browning, 6.61; temperature, 5.79; water, 6.61.

** Highly significant F values needed at the 0.01 level were: browning, 16.26; temperature, 13.27; water, 16.26.

significant in this case. On the other hand, when the small amount of water was used, about 40 per cent was in the broth and about 60 per cent in the meat (Table 5). This difference was statistically significant.

It would seem, therefore, that stewing may be regarded as an extraction procedure in which extraction increases with increasing volumes of extractant within certain practical limits. This is important from a nutritional point of view as well, for when a small amount of water is used for cooking, the meat is richer in pantothenic acid than the broth, whereas when a large amount of water is used, the meat and broth are equally valuable as sources of pantothenic acid. The nutritionally valuable broth should not be discarded.

Recommended daily allowances for pantothenic acid have not been established.

CONCLUSIONS

(a) The retention of pantothenic acid during cooking varied from approximately 65 to 95 per cent among the various stewing methods. Average total retention was about 75 per cent. The difference in content between raw and cooked meat samples was highly significant for both beef and lamb. A definite loss of pantothenic acid occurred during cooking.

(b) Browning affected total retention of pantothenic acid, and the difference was highly significant statistically for both beef and lamb. The brown stews actually contained 10 per cent less total pantothenic acid than the light stews.

(c) Temperature of cooking affected total retention of pantothenic acid in beef stews but not in lamb. The difference between temperatures was statistically significant. However, the pressure-cooked beef stews, which had the highest total content, had only 15 per cent more pantothenic acid than the boiled beef stews which had the lowest total content.

(d) The amount of water used for stewing did not affect the total retention of pantothenic acid, but did affect the distribution of this vitamin between meat and broth. With a large amount of water, the vitamin was about equally divided between the meat and the broth. With a small amount of water more of the vitamin was in the meat and less in the broth. In either case, however, the broth had a considerable share of the nutritive value of the stew.

TABLE 4

Differences in pantothenic acid content associated with cooking variables

VARIABLES	PANTOTHENIC ACID CONTENT*					
	Meat		Broth		Total	
	Beef	Lamb	Beef	Lamb	Beef	Lamb
	mcg./gm.	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*
Browned					15.23	18.27
Not browned					16.80	20.22
Difference					1.57	1.95
Percentage of difference**					9	10
Pressure-cooked	9.43	11.34			17.31	19.57
Boiled	7.76	10.00			15.06	18.88
Simmered	8.51	10.27			15.67	19.28
Greatest difference	1.67	1.34			2.25	0.69
Percentage of difference†	22	13			15	4
Large amount of water	7.99	9.55	9.16	9.51		
Small amount of water	9.14	11.52	5.73	7.91		
Difference	1.15	1.97	3.43	1.60		
Percentage of difference †	14	21	60	20		

* On dry, fat-free basis.

** Content of not-browned stew was considered 100 per cent.

† Lower content value was considered 100 per cent.

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TABLE 5

Distribution of pantothenic acid between meat and broth

AMOUNT OF WATER	DISTRIBUTION OF PANTOTHENIC ACID		F VALUE†
	Meat	Broth	
Beef			
	%	%	
Large	47	53	1.98
Small	61	39	13.44*
Lamb			
Large	50	50	0.00
Small	59	41	33.66**

† Calculated from content on dry, fat-free basis only. Error terms were first order interactions of the variable x replicates.

* Significant difference. F value needed for significance at the 0.05 level was 6.61.

** Highly significant difference. F value needed for high significance at the 0.01 level was 16.26.

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The Ohio Dietetic Association Recruiting Program

Ohio dietitians are taking their recruiting responsibilities seriously. Both the state and local dietetic associations have been informing the various communities of the numerous ways in which the dietitian renders service, and of the vital need for more trained dietitians.

The Ohio Dietetic Association is sponsoring two projects. One is the placing of large posters in the home economics departments of the colleges throughout the state. The other has involved the preparation of a number of scrapbooks which include pictures taken at the different training schools. These are distributed to the high schools. To foster continued development of the scrapbooks the Ohio Home Economics Association has been asked to contribute additional material.

Local associations have developed their own recruiting programs. The Cincinnati group has an ambitious twelve-point program which includes such activities as a dinner and panel discussion (a joint meeting of the Home Economics Association, the Home Economists in Business, and the Cincinnati Dietetic Association), to which vocational advisors and members of the Board of Education were invited. Opportunities in the field of home economics were discussed. Other projects which keep Cincinnati dietitians busy are poster and picture displays, skits presented to high school and college students, newspaper spreads, and talks to allied groups. Recently a slogan contest was held. Marian Jackson, nutritionist of the Cincinnati and Hamilton County Chapter of the American Red Cross, won the contest with the slogan, "Choose a profession you can use every day—be a dietitian."

In Akron the newly organized association has given talks to various groups, stressing dietetics as a profession.

Columbus dietitians recently joined other home economists at a dinner meeting to which sixty high school seniors and their teachers were invited. During the evening members of the different groups participated in the program, which was entitled, "Home Economics Can Be Fun and a Career, Too."

Since last August the Dayton Dietetic Association has been preparing a portable exhibit. It contains information on the prerequisites and training for the profession, pictures showing dietitians in Dayton at work, and booklets for free distribution. The exhibit is to be sent to all high schools in Dayton as well as to other high schools in the county.

Cleveland dietitians planned a Dietitian Week. Their program was divided into three phases as follows:

(a) High schools and colleges were contacted, asking that the dietitians be permitted to participate in their vocational guidance programs. "Dietitians in Demand" was made available to the schools.

(b) Exhibits were placed in schools and public libraries.

(c) Contacts were made with individuals who could help to publicize the program. The first person approached was the mayor, Thomas A. Burke, who proclaimed the week of May 19 to 24, 1947, as Cleveland Dietitian Week. Publicity was given by means of newspaper write-ups, radio programs, and restaurant advertising.

Newspaper publicity included a number of articles. In the Cleveland *Plain Dealer* there appeared an editorial about dietitians; and Helen Robertson wrote an article for her column entitled, "There Is an Urgent Need for Trained Dietitians." Mary Nolan of the Cleveland *Press* published a feature article, "Dietitians Are in Demand," with pictures taken at local hospitals. "Dietitians Win Role as Doctor's Aide" was the caption of the feature article by Jean Walker of the Cleveland *News*.

Radio programs also brought the dietitian to the attention of the public. On station WHK, Eleanor Hanson, home economist, made spot announcements and gave two, five-minute interviews, one with a hospital dietitian and another with a restaurant dietitian. Miss Hanson also arranged for an evening broadcast in which a fifteen-minute sketch of the work of a hospital dietitian was given. At some future date dietitians are to be on the program, "The Quiz of Two Cities." Mildred Fennel, home economist on station WTAM, used one of her half-hour programs for answering questions about dietitians in all fields.

Editorial

PHILADELPHIA OFFERS RICH BACKGROUND FOR OCTOBER MEETING

Philadelphia, the scene of the 30th Annual Meeting of the American Dietetic Association, October 13–17, has not only a brilliant history in the political development of our country, but has also played an important part as catalyst in the advances of medicine and the development of dietetics.

Those dietitians in search of historical notes concerning the profession will find Philadelphia rich in the lore of dietetics. Of special interest is the appointment in 1895, of an "advanced graduate dietition," Miss Blennerhasset, at West Philadelphia Hospital for Women—now Women's Hospital. Four years later a graduate of Drexel Institute was appointed as "diet matron." Another pioneer was Martha G. Byerly, who was a student in the first normal class of 1891–92 at the Philadelphia Cooking School. Miss Byerly, on graduation, taught the senior class of nurses of Pennsylvania Hospital. In 1893 she went to the Presbyterian Hospital as "superintendent of diet," but continued teaching the nurses of the Pennsylvania Hospital.

It was in Philadelphia that the second training course in the country for hospital dietitians was organized by Helen Gilson on May 30, 1911, at Jefferson Hospital. The course was at first six months in length, but was later cut to four months. Five years later Miss Gilson established the training course at the Pennsylvania Hospital, which became a course officially approved for training of student dietitians by the American Dietetic Association in 1931 and continued until the course was withdrawn in 1939. When this course was first opened, it provided a nine-month training period and a few years later, the time was lengthened to a year. Such early courses were important to the profession for they set the first standards of training and performance for dietitians.

Philadelphia provided for these pioneer dietitians an atmosphere conducive to progress, for Philadelphia's leadership in the medical field dates back to before the Revolution. In 1765 the University of Pennsylvania founded its School of Medicine, the first of its kind in North America. Jefferson Medical College, Hahnemann Medical College, and Temple University School of Medicine, together with their associated hospitals, have won distinction not only in the city but in the nation as well. Women's Medical College of Pennsylvania, founded in 1850, marked the entry of women into medicine.

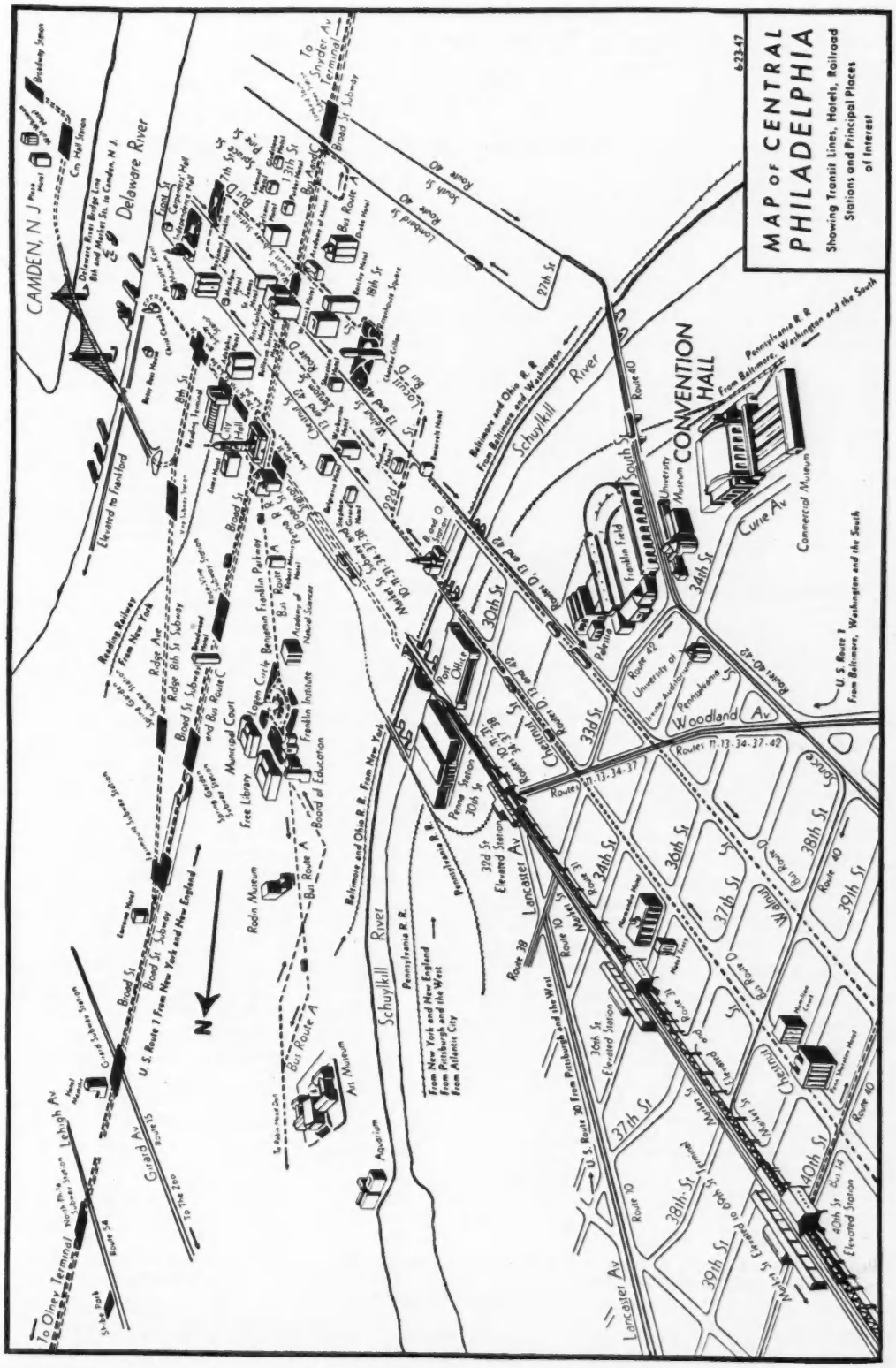
Philadelphia General Hospital is the oldest public hospital in the country, having been founded as an almshouse in 1728. In 1751 Dr. Thomas Bond and Benjamin Franklin founded what is now the oldest hospital in the United States—the Pennsylvania Hospital. The cornerstone of the permanent edifice, laid on May 28, 1755, was engraved with the following inscription typical of the Franklin philosophy:

IN THE YEAR OF CHRIST
MDCCLV
GEORGE THE SECOND HAPPILY REIGNING
(FOR HE SOUGHT THE HAPPINESS OF HIS PEOPLE)
PHILADELPHIA FLOURISHING
(FOR ITS INHABITANTS WERE PUBLICK SPIRITED)
THIS BUILDING
BY THE BOUNTY OF THE GOVERNMENT
AND OF MANY PRIVATE PERSONS
WAS PIOUSLY FOUNDED
FOR THE RELIEF OF THE SICK AND MISERABLE
MAY THE GOD OF MERCIES
BLESS THE UNDERTAKING

The original building is still in use. Visitors are welcome at the Pennsylvania Hospital and, on application to the administrator's office, will be shown through the historical part of the institution. They will also wish to see the Food Clinic which is a busy section of the Out-Patient Department and to note the part the Dietary Department plays in present-day research.

Thus the 30th Annual Meeting promises stimulation from the newest advances in nutrition and dietetics, coupled with appreciation of pioneering efforts of the early members of the profession. Meetings and exhibits will be held at Convention Hall, while social functions will take place at either the headquarters hotel, the Benajmin Franklin, or the Bellevue Statford. The tentative program for the meetings will be published in the September JOURNAL.

Accompanying this editorial is a map of Philadelphia, showing the location of Convention Hall in relation to hotels suggested by the Philadelphia Convention and Visitors Bureau. These hotels were listed in the April issue of the JOURNAL. It is suggested that hotel reservations be made early and that wherever possible members plan to share rooms.


MAP OF CENTRAL PHILADELPHIA
Showing Transit Lines, Hotels, Railroad Stations and Principal Places of Interest
6-23-47
CAMDEN, N. J.
Delaware River
Schuylkill River
CONVENTION HALL
Broad St
Market St
Chestnut St
Walnut St
Lancaster Av
Woodland Av
Curie Av
Lehigh Av
Girard Av
Route 40
Route 10
Route 30
Route 38
Route 42
Route 54
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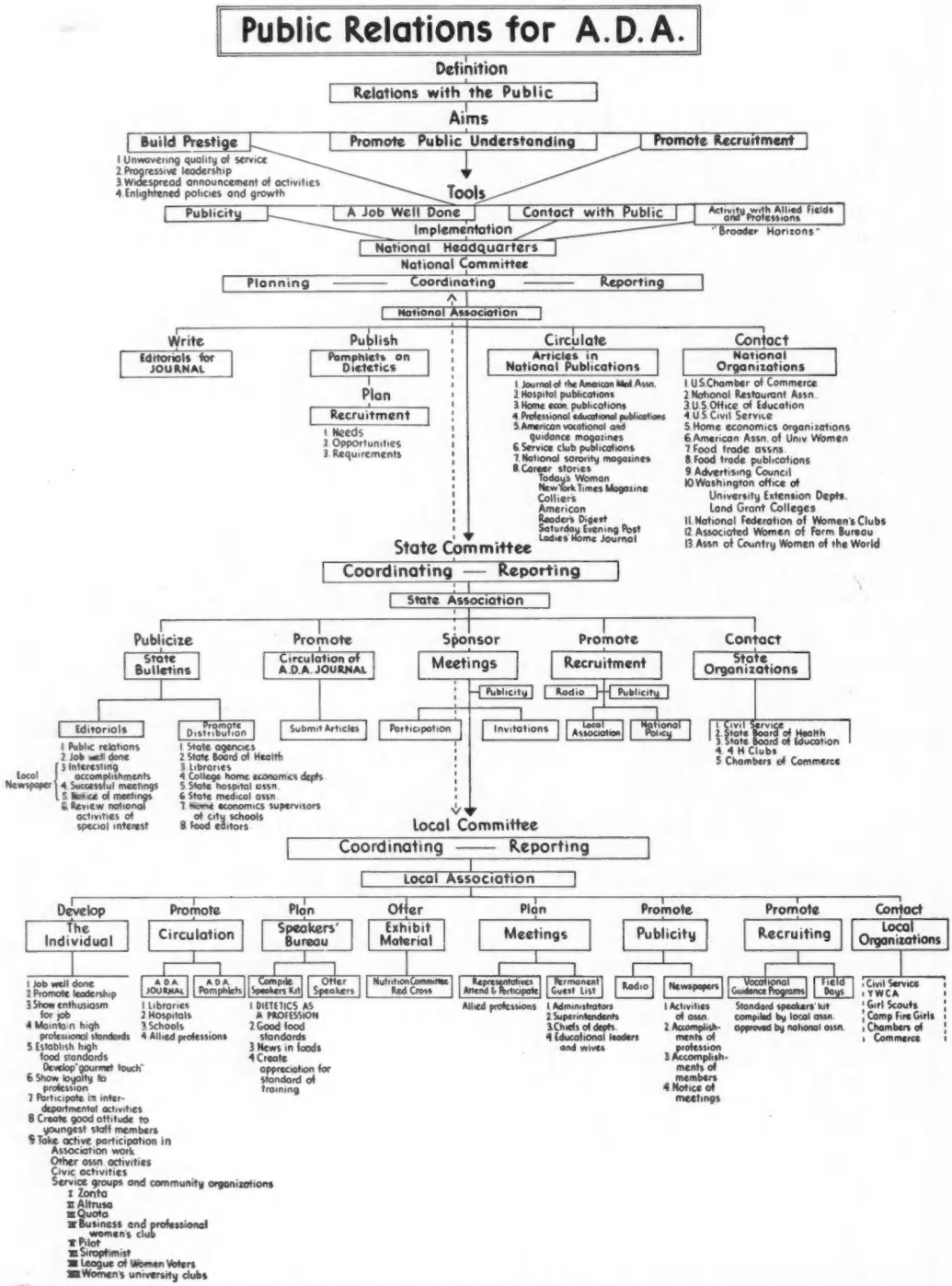

The above chart, drawn up by the Public Relations Committee of the American Dietetic Association, incorporates the Committee's recommendations for the scope of a public relations program for the association and methods suggested for implementing it.

Current Comment

INFLUENCE OF FREE, MID-MORNING NOURISHMENT ON MILK CONSUMPTION OF HOSPITAL EMPLOYEES[1]

MARIAN BRYAN

Dietetic Intern, Miami Valley Hospital, Dayton, Ohio

In the latter part of February, 1945, Miami Valley Hospital instituted a program whereby all hospital employees, professional and non-professional alike, could avail themselves of a half pint of milk, without charge, as a mid-morning nourishment. Numerous factors influenced the establishment of this program. Because certain departments received some form of nourishment, and in others employees supplied their own refreshments of crackers, soft drinks, and potato chips, which meant untidy floors and stations, it was felt that a nourishment should be accessible to all and in a form beneficial to all. The mid-morning milk put all personnel on the same basis and did away with untidiness.

Representatives of the various units call at the main kitchen for the milk which is packaged in convenient, disposable ½-pt. cartons. A tour of the hospital between 9 and 11 A.M. would reveal two members of the laundry department in the main kitchen to obtain the milk for their unit, several others waiting with their baskets to get the free milk for their groups, a head nurse taking a few minutes from her busy day for her milk, a maid opening a carton of milk, a carton sitting on a secretary's desk as she types, or a dietitian taking sips of milk while planning special diets.

The members of the dietary department like to refer to this program as their "silent milk campaign." Essentially, it is just that; milk is the only nourishment given. Compare the food value of ½ pt. of milk with that of a 6-oz. bottle of soft drink (Fig. 1), which many employees would probably obtain for themselves if milk were not offered. The contrast in the contribution each makes to the daily food recommendations given by the Food and Nutrition Board of the National Research Council for a moderately active man (1) is marked. The ½ pt. of milk offers a valuable supplement to the dietary of each employee.

This study was undertaken to discover if the milk

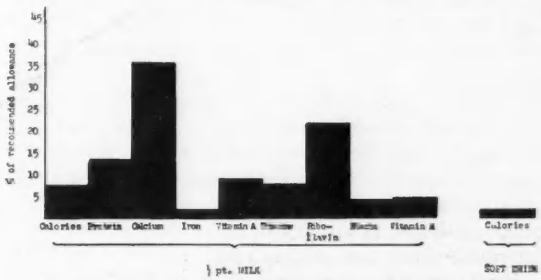

FIG. 1. *Comparison of recommended daily dietary allowances furnished by ½ pt. milk and one bottle soft drink.*

habits of the hospital employees had been changed by this free mid-morning milk. One hundred and two hospital employees, 16 per cent of the total personnel, both professional and non-professional, from various departments were interviewed. Some of the questions asked of each employee were: Do you take milk as a beverage any other time during the day? Would you take 1 pt. of milk a day without the mid-morning milk? Have you always taken milk as a beverage? If not, when did you start?

The results of these interviews are summarized in Table 1. Of the employees interviewed, 53 per cent take the mid-morning milk nourishment three to seven times a week, while 47 per cent rarely or

TABLE 1

Consumption of milk by hospital employees

DAILY MILK CONSUMPTION	PERCENTAGE OF EMPLOYEES PARTICIPATING IN MID-MORNING NOURISHMENT PROGRAM	
	Usually	Rarely
	%	%
None		18
½ pt.	23	13
1 pt. or more	30	16
Total	53	47

[1] The studies presented in this section of the JOURNAL were submitted as entries in a contest among dietetic interns in Ohio which is sponsored annually by the Ohio Dietetic Association. They were presented at the state convention held in Dayton on April 25. An editorial published in the November, 1946. issue of the JOURNAL described more fully the nature and aims of this contest.

never take this milk. The ½ pt. of milk in the morning was the only milk consumed as a beverage during the day for 23 per cent; 13 per cent, who rarely or never take the mid-morning milk, drink ½ pt. daily anyway. One pt. of milk or more daily is obtained by 46 per cent of all the employees questioned, 30 per cent of whom do take the offered milk. On the other hand, 18 per cent, drink no milk as a beverage. It is possible that this group may obtain the intake recommended in the "Basic Seven" for an adult (1 pt. daily) by taking milk in prepared foods, but it is improbable considering that almost 17 per cent indicated that they did not like milk.

This figure and the fact that 6 per cent of the employees interviewed expressed the belief that milk is "fattening" shows that there is still much educational work to be done to reach the goal of adequate nutritional knowledge and application of that knowledge for all. One employee stated that he had not drunk any milk for forty-five years because, as he expressed it, "that's all I got when I had typhoid fever." Another employee mentioned that he did not like milk alone because it left a "thick" taste in his mouth. Only one employee of the 102 interviewed said that the mid-morning milk interfered with the appetite for the noon meal; one employee mentioned feeling hungry in the morning and that he appreciated the nourishment for that reason.

If no benefits were derived from the free milk program other than the fact that 10 per cent of the employees interviewed have just begun drinking milk since it has been made available in the morning, this would be sufficient return. Couple this with the fact that if it were not for the free milk, 23 per cent would consume no milk as a beverage and an additional 20 per cent would not get the recommended pint daily, and the true value of this "silent milk campaign" is recognized.

One of the reasons given by employees who just started drinking milk when it became available in the middle of the morning was that everyone else was taking milk so they did too. Others took it "just to be sociable," while one employee felt that some food value might be received from milk not obtained otherwise. One employee had not drunk milk since childhood, but started again because it was there and convenient. Other employees, after taking mid-morning milk, then felt free to have another beverage, such as coffee, with their meals. One employee, who has just started drinking milk since being employed by the hospital, has been influenced to purchase a quart of milk every other day for home use.

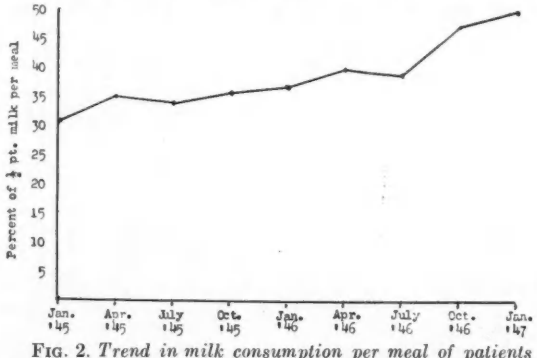

FIG. 2. *Trend in milk consumption per meal of patients and employees from January, 1945, through January, 1947.*

The trend in the milk consumption of patients and employees from January, 1945, through January, 1947, was studied at three-month intervals to see if this trend substantiated the milk consumption increase found in connection with the employee interviews. This trend is depicted in Figure 2. This figure does not give an accurate account of milk consumption, however, for, while all employees receive milk in the ½-pt. cartons, not all of the patients receive it in these containers. Because figures for milk purchased for only the employees or for both the patients and employees could not be obtained, the milk purchased in ½-pt. cartons for the month represented was divided by the total patient and employee meal census for that month. Thus a comparative figure was obtained showing a trend and not true milk consumption per patient and employee per meal. According to the figure, consumption is almost ¼ pt. per patient and employee per meal, or approximately ¾ pt. daily. Actually, it is more, as the total amount of milk taken by the patients is not included.

The results indicated a 17 per cent increase in milk consumption for the two-year period represented, which covers a 1¾-month period before the mid-morning milk nourishment was offered and a 22¼-month period after its inauguration. The extent to which the free milk influenced the increase in milk consumption could not be accurately determined because other factors, such as national and community nutrition programs, may have affected this increase. It is certainly safe to assume, however, that the milk supplied on the job did influence this trend.

REFERENCE

(1) FOOD AND NUTRITION BOARD. Recommended Dietary Allowances, Revised. National Research Council Reprint and Circ. Series No. 122, August, 1945.

THE EXTENT OF SEASONAL VARIATIONS IN FOOD INTAKE OF PRIMIPARAE

CHARLOTTE G. CHAFFEE

Dietetic Intern, Ohio State University Hospital, Columbus

Since diet during pregnancy affects the optimal development of the fetus, the health of the child postpartum, and the whole course of pregnancy for the mother, it has been the subject of many studies. Its importance provides a teaching challenge to all

medical and nutrition workers in order that every prospective mother may know the kind and amount of food she should eat during this period.

Since a reliable account of food habits is necessary before the customary instruction in adequate nutrition can be given, the food intake of pregnant women was the subject of a study during June and July, 1946 at the Prenatal Clinic of Ohio State University Hospital. However, this study included only one season of the year, and since variations in dietary intake occur as a result of seasonal changes in food habits and availability, the author undertook a second study in March, 1947, to determine the extent of these variations.

The data were collected by the interview method. Each subject was interviewed and the average daily food intake recorded on a questionnaire. An attempt was made to evaluate the validity of the diet recorded by repeated questions and by various types of interviews and approaches to a topic. For example, a woman living in a family of six reported that she drank a quart of milk a day, but later admitted that the quart referred to was purchased every other day. Such data were discarded as being improbable. However, if there was no reason to question an answer and if all the information seemed to be consistent, it was used in the study.

Subjects for the second study included twenty-three primiparae, of whom seventeen were Negroes; six were white women of the lower middle economic class. Even though this group was comparatively small, it was believed to be representative of the patients who come to the Prenatal Clinic.

Each of the seven food groups was studied separately, and the recommended dietary allowances of the Food and Nutrition Board of the National Research Council (1) were used as standards. The results of the two studies are given in Table 1.

In March only 20 per cent of the group observed drank a quart or more of milk a day, and 51 per cent drank less than a pint. The milk consumption as recorded for June-July had been much higher. At that time almost 40 per cent drank a quart or more of milk a day. The lower consumption in March could have been due to the higher cost of milk as compared to the previous summer. It might also have been based on the fact that people prefer a hot drink in the winter and a cool drink in the summer.

Egg consumption was also lower in March. Fewer primiparae were eating one egg or more daily, but more ate three to four eggs weekly. About the same percentage ate less than that number. Eggs were still expensive during the March study as compared with their lower price during the first study.

Data on the daily meat intake indicate that a larger percentage of women ate two or more servings of meat in March. Luncheon meat or bologna, which was counted as one serving, comprised 42 per cent of the meat for those reporting two or more servings each day. The fact that meat was scarce and expensive last summer was probably the cause of the low meat intake at that time. In March it was more available, which may account for the higher percentage of subjects consuming two or more servings daily.

An outstanding difference in the consumption of fruit was found. The March results showed a definite decrease from the high percentage (71 per cent) of subjects who ate two or more servings of fruit daily in June-July. Twice as many of the March group ate one serving of fruit, and a higher percentage consumed less than one serving daily.

The common fruits eaten in March were grapefruit, oranges, apples, and canned peaches. This was probably due to the ready availability of these particular fruits, as well as the fact that they are cheaper in the winter, whereas there had been more variety in the summer. It was noted that 61 per cent of the March group ate a citrus fruit, daily.

TABLE 1

Seasonal variation in the food intake of primiparae

FOOD INTAKE	PERCENTAGE OF PATIENTS CONSUMING VARIOUS FOODS	
	March, 1947	June-July, 1946
Milk		
1 qt. or more daily	20	37
1 pt. or more (less that 1 qt.)	29	40
Less than 1 pt.	51	23
Eggs		
One or more daily	40	55
3 or 4 weekly	26	10
Less than 3 or 4 weekly	34	35
Meat		
2 or more servings daily	40	23
1 serving daily	43	56
Less than 1 serving daily	17	21
Fruit		
2 or more servings daily	40	71
1 serving daily	31	15
Less than 1 serving daily	29	14
Vegetables		
2 or more servings daily	46	52
1 serving daily	37	26
Less than 1 serving daily	17	22
Cereal products		
4 servings daily	12	26
More than 4 servings daily	60	60
Less than 4 servings daily	28	14
Butter or enriched margarine		
2 or more tbsp. daily	23	40
1 tbsp. daily	54	36
Less than 1 tbsp. daily.	23	24

There was no outstanding difference between the quantities of vegetables consumed in March and in the June-July period. This finding might mean that these women did not have gardens during the summer, as we might expect, and therefore had to buy vegetables regardless of the season. Also, because meat was expensive, the June-July group might have been spending their money for it rather than apportioning some of it for the purchase of vegetables.

A smaller percentage of the March group reported an intake of cereals equal to the recommendations of the "Basic Seven." Of particular interest is the fact that the same percentage of each group ate more than four servings of cereal products daily. This was due to the large number of sandwiches eaten.

The percentage of primiparae reporting a daily intake of two or more tbs. of butter or enriched margarine was 17 per cent greater in June–July than in March. A greater percentage had one tablespoon, and almost the same percentage in both studies had less than one tablespoon daily.

In summarizing, the quantity of meat eaten was the only increase found in the intake of the March group. The percentage of women reporting food intakes which would provide the recommended quantities of fruit, milk, eggs, and butter or enriched margarine was significantly less in March.

The diets reported by white and Negro patients were not separated for the purpose of this report. It was obvious to the observer, however, that the diets of the Negro patients met the recommended daily allowances more adequately than those of the white women. It was felt that this was due to the fact that at this low economic level, the Negro bought food first, even if it meant fewer clothes and less furniture, while the standard of living of the white women may have demanded a different budget with less money for food and more for other items.

This study indicates that there is a definite seasonal variation in the kind and amount of foods consumed. It would seem, therefore, that surveys of food intake should be made at more than one season of the year if an accurate picture of food habits of a given group is to be obtained.

REFERENCE

(1) Food and Nutrition Board. Recommended Dietary Allowances, Revised. National Research Council Reprint and Circ. Series No. 122, August, 1945.

TREND IN FOOD PRICES, 1939–1947

AUDREY M. HARTMAN

Dietetic Intern, Christ Hospital, Cincinnati

The purpose of this study was to examine the actual food cost increase and price fluctuations from 1939 to 1947. Records were available from past student projects, dietary food cost records, and annual financial reports.

Prices on the various graphs are based on records of prices for January 1 and June 1 for every year until 1946. Due to large price jumps which could not be shown by a six-month record, prices have also been recorded for September 1, 1946, in some of the graphs.

Margarine, butter, and shortening. Prices ranged from 5 to 85 cents per pound, depending upon the type of fat considered. Figure 1 shows the relative variations in the price of table butter, cooking butter, margarine, and shortening.

In 1939, a less expensive grade of butter was used for cooking. This ran about 2 cents cheaper per pound. Due to steadily rising prices, however, the use of cooking butter was discontinued in June, 1942. This change cut the price of cooking fat to 25 cents per pound, for margarine was then used. During price control the price dropped to 23 cents but, with the removal of price ceilings, margarine advanced in price, making a 90 per cent increase from 1945 to 1946.

Price fluctuations of butter during 1939 and 1940 were seasonal, a higher price being commanded when the dairymen were feeding their dairy herds on silage than when cattle were put to pasture. In 1941 the price began a steady upward climb, reaching its wartime peak of 51 cents in 1944. Ceiling prices leveled off the upward trend for the following two years. In June, 1945, and continuing through the first six months of 1946, the price again moved upward. After the removal of price controls, an 80 per cent increase in price was recorded.

During 1939, lard rather than vegetable shortening was used for baking. Consequently, there is no

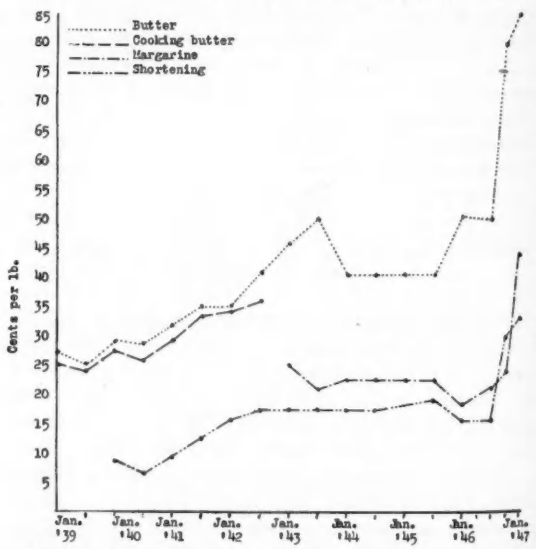

FIG. 1. *Price fluctuations for fats from January, 1939, to January, 1947.*

record for prices of shortening shown on the graph. We find a fairly stable picture for shortening during 1940 and 1941. Starting at 9 cents per pound, it dropped 3 cents in 1941; however, in the next year there was a rapid increase, followed by only small variations from 1942 to 1946. With the removal of price controls, shortening followed closely the picture of other fats, rising from 17 cents per pound in 1945 to 35 cents in 1946, or an increase of 100 per cent in one year!

Beef. Figure 2 shows the price variations for five different cuts of beef.

Until 1943 the hospital bought its own beef to grind. Rationing changed this procedure and as the cheaper cuts became scarcer and harder to obtain, the hospital switched to purchasing ground meat. Ground beef was first bought at 25 cents per pound and rose to 40 cents in June, 1943. The price has fluctuated back and forth until it is now approaching its 1939 level.

Short ribs enjoyed a price increase due to their low point value. In 1939 they sold for 14 cents a pound and dropped to 10 cents in 1940. In the following years short ribs gradually rose in price, reaching their peak of 45 cents in January, 1945. With the cancellation of ration points, their decline in price was more rapid than their rise.

Beef chuck followed the seasonal drops in the price picture. In 1941 the rise was from 14 to 17 cents. In 1942 the price gradually increased, reaching 30 cents in June, 1943. The rises in price occurred during the summer months. Beginning in June, 1945, there was a slight decrease from 30 cents to 25 cents.

Cube steak, an economical and usually cheaper cut, rose steadily in price starting at 24 cents and showed slight seasonal fluctuations. By June, 1945, the price had doubled and in January, 1946, the increase was almost 30 cents more than it had been in 1939.

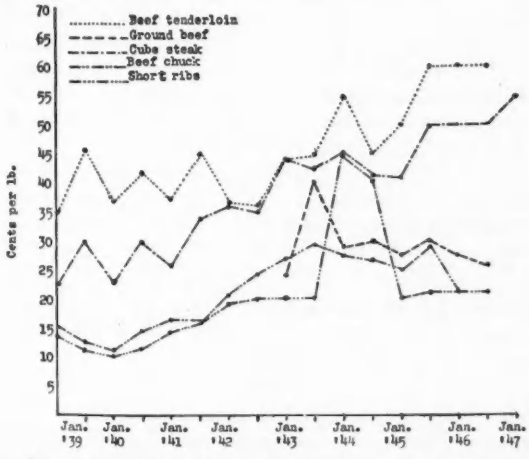

FIG. 2. *Trend in prices for five cuts of beef, January, 1939, to January, 1947.*

Prices for beef tenderloin have been more irregular than for the other cuts. In 1939, it sold for 35 cents a pound. A 20-cent increase is noted in 1944. When controls were removed in 1946, the prices skyrocketed, increasing some 70 per cent, or from 53 to 80 cents during that year.

Bacon, ham, and smoked ham. In June, 1940, the hospital paid 18 cents a pound for bacon (Fig. 3). Today the price is 63 cents per pound. Since 1940 the price increase has been gradual with a slight fall in 1944 and 1945. In 1946 bacon increased 98 per cent over its 1945 price.

Boiled ham cost 30 cents a pound in 1939 and moved gradually upward until 1943. In 1944, a 3-cent drop occurred in the price, but in 1945 it went back up to its 1943 high of 49 cents, and then dropped again to 46 cents. When price controls were released, ham increased 72 per cent.

The price picture for smoked ham is one of many gradual ups and downs. From 1940 to 1942 there was an upward trend with a sudden drop in 1943, followed by a sharp increase. The price remained fairly stable for two years between 1944 and 1945. In January, 1946, smoked ham dropped to the 1939 level of 27 cents. Then, from January until December, there was an increase of 50 per cent in price.

Fruits. Figure 4 shows that prices for fruit ranged from 75 cents per bushel for apples in January, 1940, to $6.50 per crate for oranges and grapefruit in June, 1945.

Apples started at $1.40 a bushel and have steadily increased in price, except for three distinct drops occurring during the winter months in 1940, 1942, and 1944. From 1945 to June, 1946, apples rose from $3.00 to $5.25 per bushel and then dropped suddenly in September, 1946, to $3.25. A low of $2.50 was reached in January, 1947.

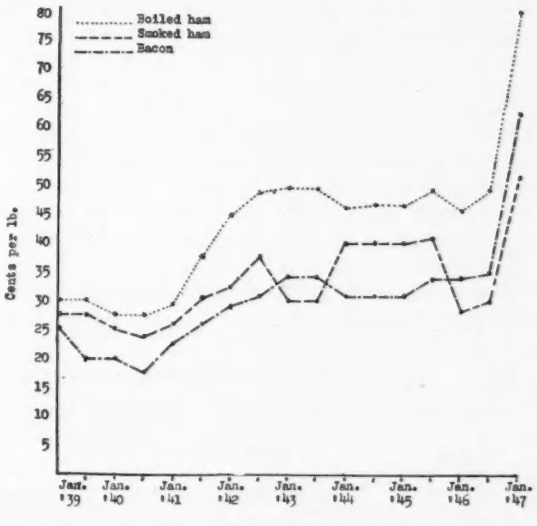

FIG. 3. *Price variations in ham and bacon from January, 1939, to January, 1947.*

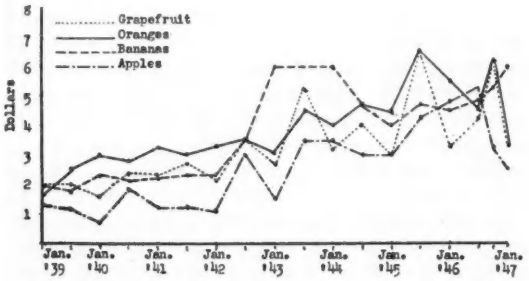

FIG. 4. *Cost of fruit from January, 1939, to January, 1947.*

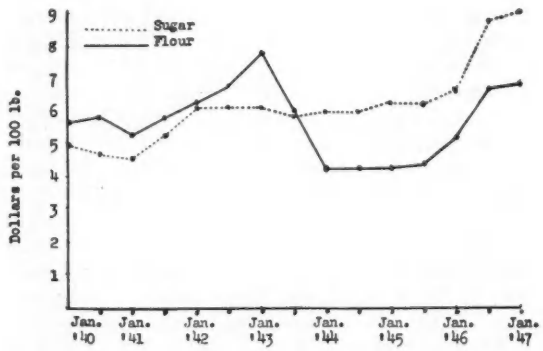

FIG. 5. *Price trends of sugar and flour in the last seven years.*

Seasonal price drops in oranges are largely counteracted by higher prices in the spring, as will be seen on the graph. Oranges in 1939 sold for $1.75 per crate. Two steep rises in prices are shown—one in January, 1943, which was from $3.00 to $4.75, and the other in 1945 when the increase was from $4.50 to $6.50. Both of these increases were followed by decreases with the last one being the greatest. Oranges were again an expensive item when they rose to $6.25 a crate in September, 1946. However, this rise was followed by one of the sharpest declines in prices that we have recorded.

In 1942, the insurance rates on ocean shipping tripled, and in consequence, the price of bananas tripled. At the close of the war, the price dropped to $4.00 per 40-lb. box, but again the price reached the wartime high of $6.00 in December, 1946. This is in comparison to $2.00 paid for the same weight in 1939.

Grapefruit sold at $3.00 per crate in 1939 and has gradually increased in price. Rises have been

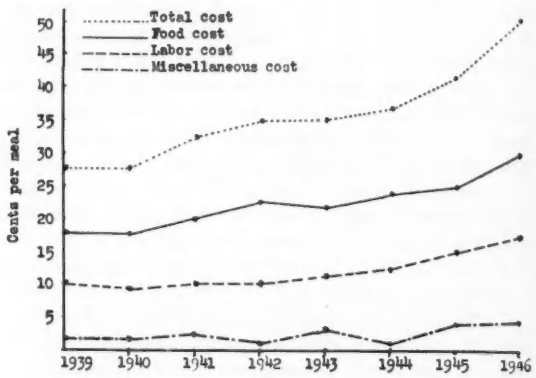

FIG. 6. *Cost per meal from 1939 until January, 1947.*

followed by equally sharp declines beginning in 1942. The high was reached in June, 1945, as was the case with oranges. The following decline in price was slightly less than the previous rise. During September, 1946, grapefruit rose almost as high as it did in 1945, but the price dropped to $3.25 per crate by the end of the year.

Flour and sugar. It seems almost unbelievable that flour cost $7.75 per 100 lb. in January, 1943. This was due to the predicted shortage and the consequent hoarding. The price dropped suddenly to a new low of $4.10 in the beginning of 1944, however, and remained at approximately the same level until the beginning of 1946. By the end of that year, it had risen to almost $7.00 (Fig. 5).

Sugar rose rapidly in price between 1941 and 1943, after which price controls kept this commodity fairly stable until the beginning of 1946. The price has since soared from $6.15 to $9.00 per 100 lb.

Meal costs. Figure 6 indicates the cost per meal from 1939 until January, 1947. The three lower lines indicate the raw food cost per meal, the labor cost per meal, and the miscellaneous cost per meal. In spite of price control, the gradual rises in labor and in raw food cost have been almost parallel. Food costs have practically doubled in these seven years. Miscellaneous costs include breakage, repairs, and any of the incidental expenses in kitchen operation. This figure alone has remained stable.

The top line represents the total cost per meal, obtained by the addition of the three individual costs indicated below. This started at 28 cents in 1939 and rose to 49 cents in 1946.

New Appointments, Veterans Administration

The following hospital appointments of dietitians (not previously announced) have been made by the Veterans Administration.

Name	Position	Location
	Branch No. 4	
Agnes Flippo	Staff Dietitian	Washington, D. C.
	Branch No. 6	
Bernice Haun	Staff Dietitian	Louisville, Ky.
	Branch No. 12	
Geraldine Dunn	Staff Dietitian	Los Angeles, Calif.
Genevieve Heinz	Staff Dietitian	Los Angeles, Calf,

Book Reviews

The Preparation and Use of Visual Aids. By Kenneth B. Haas and Harry Q. Packer. New York: Prentice-Hall, Inc., 1946. Cloth. Pp. 224. Price $4.

The authors are well qualified and have presented an excellent source of accurate and usable information in concise form. For one having occasion to use any method of visual education, this book should prove of value. In conducting classes in nutrition, teaching dietitians will benefit from the suggestions for presenting material more effectively, while administrative dietitians will find this book a welcome reference in their libraries. With the greater emphasis on training as a means for decreasing labor turnover and increasing efficiency, it is advisable, that we, as dietitians, use every technique available to attain the desired results.

Each of the thirteen chapters is devoted to one of the classifications of visual education which include: motion pictures, training slides, graphs, projectors, posters, field trips, bulletin boards, and photographs. The questions of what, where, when, and how in reference to each type of visual aid are adequately answered. The list of "do's" at the end of each chapter will aid in the avoidance of some of the pitfalls encountered the first few times one uses visual aids.

Dietitians are not overlooked in this book, for one of the photographs in the chapter on "Maps, Charts, Graphs, and Diagrams" indicates how graphs are used to aid in the visualization of food values. Many points are clarified throughout the book by the numerous illustrations.

Appendix I discusses printed training aids, while Appendix II lists the sources of the visual aids. This latter listing will be a time-saver for anyone who is just beginning to employ visual aids.

Although the book is not directed specifically to dietitians, or to any other group in particular, the information it contains is adaptable to the purposes of almost all dietitians who are interested in availing themselves of new techniques.—*Mary Agnes Pohl, Employee Training Supervisor, St. Luke's Hospital, Cleveland, Ohio.*

Food and Health. By Henry C. Sherman. Rev. ed. New York: The Macmillan Company, 1947. Cloth. Pp. 290. Price $4.

A new book or a new edition of an earlier publication by Henry C. Sherman is always received with interest by dietitians. The new edition of *Food and Health* is no exception. The first paragraph of the preface points out the life-time scope which is covered in the text as follows: "To a much more important extent than had been supposed, we build our own life histories by our daily use of food. The influence of nutrition upon health and, through health upon the well-being of our life processes begins before birth. It affects both physical and mental growth and development in childhood and youth, and our consequent health, efficiency, and life-expectation as adults."

The book is written in clear and direct style and is recommended to the lay person as well as to the nutritionist. The latter may well be guided by Dr. Sherman's method of approach to a highly technical and complicated subject. The initial sentence of each chapter intrigues the reader to continue. The book abounds in references to findings of other scientists and in concrete illustrations of food studies.

A careful perusal of *Food and Health* will bring anyone up to date in the field of nutrition. A note of distinct encouragement is struck in the statement that we now know how to make better use of food in order to enjoy healthier, more efficient, longer, and happier lives, more satisfying to our individual selves, and of more value to other people.

Tables of nutritive values of typical foods, calories in a list of items, and suggested menus give specific help to those who wish to calculate the nutritive values of their food intake. The book ends with a selected bibliography and a glossary of terms.

It is hoped that *Food and Health* will gain a wide readership among dietitians, physicians, health workers, teachers, and home makers.—*Mary I. Barber, Director of Home Economics, Kellogg Company, Battle Creek, Michigan.*

How to Cook and Eat in Russian. By Alexandra Kropotkin. New York: G. P. Putnam's Sons, 1947. Cloth. Pp. 270. Price $3.50.

It was this reviewer's pleasure to hear the Princess Kropotkin speak some years ago. She is a charming woman of the world who has known both extreme scarcity and abundance of food. Her book shows background and intelligence.

If you would understand people, study their food customs. Here is a pleasant way to learn about the Russians, for this book is more than a cook book; it expresses the Russian spirit of hospitality and friendliness and is interesting reading.

Russian table traditions include foods typical of specific holidays and holy days. Table service is explained, and the kitchen is described, including its utensils and larger pieces of equipment.

The foods mentioned stimulate the appetite, yet many of the recipes are simple and could well be included in American menus. The soups are especially intriguing, as are the salads and their dressings.

How to Cook and Eat in Russian will be an addition to any dietitian's reference library.—*Mary I. Barber, Director of Home Economics, Kellogg Company, Battle Creek, Michigan.*

How to Cook for Profit. By Madeline Gray and Vass de lo Padua. New York: Greenberg, 1947. Cloth. Pp. 396. Price $5.

This book has been worked out for an "average-sized" eating place and for an à la carte menu. By "average-sized" is meant a place with about seventy-five seats or, figuring two to two and a half customers for each seat per meal, a place which serves 150 to 200 diners during each service period.

The purpose of the authors in writing the book was to help prevent restaurant failures, and if the book achieves its aim, it will be an excellent investment on the part of the embryo restaurateur, for 50 per cent of the restaurants opened close their doors within the first six months of operation. It is a practical, down-to-earth guide and gives the principles and mechanics of the restaurant business. It tells how to cook food in quantity, how to buy it cleverly, how to store it so that it won't spoil, how and when to prepare it to prevent the last minute rush, how to keep it piping hot or ice cold until it reaches the customer, how to determine the size of portions to serve for profit and how to garnish them for appearance, how to carve to get the best possible yield out of every ounce of expensive meat, and finally how to use up every scrap of unsold food.

The first chapter is especially interesting, for it enumerates ten points in which cooking for home consumption and preparing food for restaurants differ.

Most important of all, the grouping of recipes has not been done according to the conventional groupings of "Meats and Fish," "Soups," "Salads," and so on. Instead, the recipes have been arranged according to the processes involved in preparing the dish, and hence according to the personnel and utensil problems of commercial cooking. For instance, one chapter deals with sautéed dishes, another with roasts, another with broiled foods, and so on.

Subheadings under each recipe tell "how much and why," "how to buy," "how to serve," "how to prepare," "how to keep hot," "portions," "how to store," and how to use later "if unsold."

The book also contains many other useful nuggets of information as to what tools and equipment to buy and what not to buy when starting a new venture, how to care for this equipment, and time-and-money-saving kitchen routine for large scale cooking. A fine table of weights and measures and a table of proportions are also presented.

This book would serve as an excellent guide for any beginner in large quantity cookery.—*Mary Rido, Administrative Dietitian, Cook County Hospital, Chicago, Illinois.*

The Cookbook for Ulcer Patients. By Walter Aurell. New York: Thomas Y. Crowell Company, 1946. Cloth. Pp. 88. Price $1.75.

The author is an amateur chef and a collector of recipes, mostly from countries other than the United States. A world traveller and evidently an interested eater, it was a shock to Mr. Aurell when he developed a peptic ulcer and was reduced to a bland diet. The patient put his past experiences to work in order to evolve some appetizing recipes.

The foreword is by Dr. Frank Co Tui, Mr. Aurell's physician, who reports that an experimental group of his patients ready to return to natural food after treatment with protein hydrolysates have tried the recipes with no ill effects.

The title of the book is somewhat ambiguous, for it seems to imply the inclusion of recipes to be used in the early treatment of ulcer. The foreword, however, explains that they are for use in the late convalescent period. The recipes are appetizing enough to be enjoyed by the well members of the family.—*Mary I. Barber, Director of Home Economics, Kellogg Company, Battle Creek, Michigan.*

Tomorrow's Food. By James Rorty and N. Philip Norman, M.D. New York: Prentice-Hall, Inc., 1947. Cloth. Pp. 258. Price $3.50.

The book is written by a journalist and a physician, with a foreword by an economist, Stuart Chase. Mr. Rorty is a contributor to a number of magazines and is the author of several books in which he has severely criticized the advertising business. Dr. Norman is now consultant for the Departments of Health and Hospitals of the City of New York.

Vigorous condemnation is made of modern methods of milling and processing and of the use of commercial fertilizers in the production of crops. The most forceful attack is made upon the displacement of whole wheat by white flour and the use of synthetically fortified "enriched" bread. Criticism is also directed at the habit of drinking colas and other soft drinks which, "by adding deleterious quantities of caffein and sugar to the diet, contribute appreciably to our national malnutrition."

Recommendations are made that vitamin and mineral content of foods be raised and that "descriptive nutrition-labeling and grading under both industry and goverment auspices" be inaugurated. The central theme of the book is that "the national diet can and should be founded on natural foods. When and if nature needs help, it should be given at the source: the culture of the soil, the plant, and the animal whence man derives his sustenance and his health." The authors call this program the essence of conservatism.

Responsibility for the present unsatisfactory state of affairs is directed at the American Medical Association, the National Research Council, and other food scientists who, it is claimed, have failed to protect the nation from commercial exploitation. The steps, as the authors see them, are carefully outlined to show that these scientists have been misled by the food industries and trade.

In spite of many pertinent facts and clear cut analyses, slightly distorted facts and an undue amount of cultism prevent the book from being entirely convincing. Nevertheless, it is colorfully and persuasively written, and any action that might be taken after reading it is more likely to be good than otherwise.

Hospitals—Integrated Design. By Isadore Rosenfield. New York: Reinhold Publishing Corporation, 1947. Cloth. Pp. 308. Price $10.75.

This new book on hospital design and planning by a well-known architect and consultant is possibly the most up to date of its kind. In the preface the author states that it is compiled from a series of lectures given in 1944 at the Architectural League of New York, under the auspices of the Department of Public Works and the New York chapter of the American Institute of Architects.

It is a handsome volume, shows excellent designing, and contains numerous photographs, statistics, and blue prints, and brings out many excellent ideas in preliminary hospital planning.

The chapter on Service Departments contains the details of planning dietary departments, three kitchen plans, and photographs of large equipment installations. However, the material is not well organized and is limited in information, although it does bring out some important points in kitchen design, such as adequate refrigeration, storage, and sanitation. The newer concepts of modern kitchens and the major trends in design have not been indicated, however, and more emphasis could have been laid on the food service fundamentals of transportation, communication, and distribution.

Most hospital designers agree that a hospital or institution today should be planned around the food service facilities. In large institutions, it is better to get away from the institutional type of cookery as practiced in the past and to have the food prepared and served from smaller units than from one large central kitchen. This book does not bring this out, and it is the opinion of this reviewer that it would not be of much aid in planning a food service department in its entirety, although the information concerning the other parts of the hospital may be excellent. —*J. Marie Melgaard, Administrative Dietitian, St. Luke's Hospital, Denver, Colorado.*

Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, Dietary Department, The Johns Hopkins Hospital; Lorraine G. Weng, University of Chicago Clinics; Martha Trulson, Veterans Administration, Chicago; Mrs. Marjorie M. McKinley, Women's Educational and Industrial Union, Boston; and the Journal staff.

THE AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 149, May, 1947

*Excess vitamin A ingestion, thyroid size and energy metabolism. D. P. Sadhu and S. Brody.—p. 400.

Vitamin A and Basal Metabolism. It is known that as a result of the administration of large doses of vitamin A, basal metabolism is depressed. White rats were studied in an attempt to determine some metabolic and anatomic responses. Heavy vitamin A medication, while allowing normal growth of the rats, depressed their basal metabolism and reduced the weight of their thyroids. The excess vitamin A also depressed the size of the thyroid glands in the thiouracil-treated rats and tended to neutralize the increased metabolic effect of thyroxine injection. While potassium iodide decreased somewhat the metabolic rate of control rats, it did not decrease the metabolism of the thyroxine-treated rats. Partly oxidized, but not fully oxidized, vitamin A reduced the size of the thyroid. Several theories are suggested for the observed effects of excess vitamin A ingestion in depressing the metabolic rate and thyroid size.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 37, May, 1947

*Ideal intake of calories and specific nutrients. F. J. Stare.—p. 515.
*Effect of restricted feeding upon aging and chronic diseases in rats and dogs. C. M. McCay.—p. 521.

Intake of Calories and Specific Nutrients. A plea for the education of the populace regarding the dangers of overeating and resulting obesity in adulthood is made. This can be accomplished if nutritionists inform people of the dangers of overweight and teach them that obesity is an entirely preventable disease. School physicians, home economists, and health educators should begin by teaching children in senior high schools the penalty of overeating in adulthood. The suggestion is made that the National Research Council's Recommended Dietary Allowances would be more fitting if no caloric intake figures were given, and that a statement be included to the effect that calories should be consumed so as to approximate ideal weight.

Effect of Restricted Feeding Upon Aging and Chronic Diseases. The purpose of all research on aging is to find means of alleviating the chronic diseases of old age. Thus we can look forward to more productive years and less financial dependence. Severe restriction in food intake has long been advocated by individuals and certain sects. It has been essential in many nations. Under conditions of restricted diet, bones seem to be the most persistent in their growth. However, if retarded for 300 days, they cannot attain their normal size. Recent studies indicated that an excess of special food substance does not succeed in extending the life span of rats.

ANALYTICAL CHEMISTRY

Vol. 19, May, 1947

*Three sources of amino acids for niacin assay. A. R. Kemmerer and F. Shapiro.—p. 358.

Sources of Amino Acids for Niacin Assay. Experiments were made on three sources of amino acids. Trypsin-hydrolyzed casein, acid-hydrolyzed casein, and charcoal-treated peptone were compared in an attempt to determine which source was the most satisfactory for niacin assay. It was shown that any of the three sources gave reliable results. However, an advantage in using trypsin-hydrolyzed casein was noted, for it was easily prepared, and the media in which it was used did not require the addition of tryptophane.

ARCHIVES OF PEDIATRICS

Vol. 64, April, 1947

*Allergy in childhood. H. C. Archibald.—p. 192.

Allergy in Childhood. Included in this review of common allergic symptoms in childhood is a discussion of food allergies. There are six methods of working out the diagnosis and treatment. Stress is placed on the emotional as well as on the immunological factors in the positive program directed toward helping children "outgrow" their allergies.

BRITISH MEDICAL JOURNAL

No. 4504, May 3, 1947

*Folic acid as a therapeutic agent. L. S. P. Davidson and R. H. Girdwood.—p. 587.

Folic Acid as a Therapeutic Agent. An account is given of the results obtained when individuals with various diseases were treated with folic acid. A hemopoietic response was obtained in cases of pernicious anemia, refractory megaloblastic anemia, and sprue syndrome. No therapeutic changes were obtained in cases of aplastic anemia, leucopenia, or thrombocytopenia. In the sprue syndrome, folic acid controlled the diarrhea and produced general clinical improvement in adults suffering from tropical sprue and idiopathic steatorrhea. Folic acid alone seldom restored the blood level or blood picture to normal. In none of the cases of celiac disease was any hematological or clinical improvement noted. The clinical and sigmoidoscopic appearances in five cases of idiopathic ulcerative colitis were unaffected by folic acid therapy.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 56, May, 1947

*Optic atrophy in Hong Kong prisoners of war. P. G. Bell and J. C. O'Neill. —p. 475.

Optic Atrophy from Malnutrition. Optic atrophy from malnutrition is a rare disease in civilized man. The recent war produced for the first time in white people a considerable number of cases of optic atrophy in the prisoners of war taken by the Japanese. The diet was composed largely of polished rice, with occasional supplies of half rotten fish or meat, soya beans, a little flour and sugar, and a fair quantity of mixed vegetables. Water was freely available. This diet was particularly low in proteins, fats, and vitamins. During captivity, 60 per cent of the men experienced a decrease in visual acuity at some time or another. Only 20 per cent or a third of these, developed residual optic atrophy. On return to Canada most of the men were treated with multi-vitamins, high-protein and high-caloric diets, and they rapidly gained weight. This treatment, however, seemed to have little effect on the eye fatigue or the optic atrophy. The etiology is discussed, and the conclusion is that, besides the usually accepted hypoproteinemia and lack of B vitamins, there is considerable evidence that a toxin may exist in mouldy rice. The optic atrophy appears permanent, and no change has occurred in the reported cases over a one-year period.

GERIATRICS

Vol. 2, March-April, 1947

*Nutritional aspects of aging. H. A. Rafsky and B. Newman.—p. 101.

Nutritional Aspects of Aging. The need for vitamin supplements in the aged is stressed by the authors. Previous work had demonstrated that apparently normal aged individuals tended to exhibit, in general, low blood levels and excretions of thiamine, low blood levels and high tolerance to ascorbic acid, and a high incidence of porphyrinuria which could be made to disappear upon the oral administration of nicotinic acid. Blood levels of carotene and vitamin A were also subnormal.

It was pointed out that by chemical analysis the food in the diet contained an ample supply of vitamins according to the standards of the National Research Council. Tests indicated that relatively normal rates of assimilation and absorption of the vitamins existed. The question of proper physiological utilization of the vitamins is being investigated. From this study the authors felt that the vitamin requirements of normal elderly people cannot be measured in terms of standards applicable to young adults or children and that the problem is either a physiological one or one of faulty utilization. They stated that irrespective of the cause, the diets of old people must be supplemented by vitamin therapy and that comparatively large amounts should be prescribed.

INDUSTRIAL AND ENGINEERING CHEMISTRY

Vol. 39, May, 1947

*Industrial wastes—a symposium.—p. 559.

Industrial Wastes. A symposium on industrial waste, as presented at the 111th meeting of the American Chemical Society, is given. Of special interest are the articles concerning food industries The recovery of tartrates from wineries, and of feeds from breweries and grain distilleries is explained. A flow chart of the dairy industry shows the numerous channels through which milk is carried. Processing of citrus fruit wastes into cattle feed is described, and a flow chart of citrus canning operations is included. Also worthy of attention are descriptions of disposal of wastes in the packing house and beet sugar industries.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 134, May 10, 1947

*The diagnosis and management of spontaneous hypoglycemia. J. W. Conn. —p. 130.
*The teaching of nutrition—III. Editorial.—p. 146.
*The metabolism of tryptophan. Editorial.—p. 147.

Vol. 134, May 17, 1947

*The teaching of nutrition—IV. Editorial.—p. 292.

Vol. 134, May 24, 1947

*Fat metabolism. Current Comment.—p. 367.

Vol. 134, May 31, 1947

*Plan for acceptance of juices. Council on Foods and Nutrition.—p. 455.
Dietary treatment of hypertensive disease. Editorial.—p. 457.

Vol. 134, June 14, 1947

*Gastric operations. R. M. Zollinger and S. O. Hoerr.—p. 575.
*Modern physiologic concepts. J. F. Weir.—p. 579.
Diagnostic management of patients with jaundice. J. E. Giansiracusa and T. L. Althausen.—p. 589.
*Essential fatty acids and infantile eczema. Editorial.—p. 606.

Spontaneous Hypoglycemia. Spontaneous hypoglycemia, which may be caused by a variety of diseases, is a manifestation of disturbed carbohydrate metabolism. Over 80 per cent of all cases are caused by functional hyperinsulinism, organic hyperinsulinism, and hepatogenic hypoglycemia. Treatment varies with each type. In the management of functional hyperinsulinism a high-protein, low-carbohydrate diet is required. Pancreatic surgery relieves organic hyperinsulinism. Cases of hepatogenic hypoglycemia call for high-carbohydrate, high-protein diets.

The Teaching of Nutrition. The role of nutrition in the pregnant woman has not received sufficient attention. It has been observed that the food intake during the antepartum period has a striking effect on the health of both mother and offspring. Because the health of future generations depends upon proper food intake, even before birth, medical students should be instructed in the practical application of nutrition in obstetric practice. Most of the teaching should be done in the antepartum clinic and lying-in hospital.

The Metabolism of Tryptophane. Some amino acids are essential not only for formation of new tissue, but for metabolic functions. Studies on human subjects have shown that only 1 per cent of ingested tryptophane from dietary proteins appears in the urine as such. Pyridoxine seems to be involved in the metabolic breakdown of this amino acid. Indication has also been given that some niacin can be synthesized in the body from tryptophane. This observation explains why an increase of the protein allowance improves the condition of pellagrins.

The Teaching of Nutrition. Few schools or hospitals give medical students formal, systematic instruction in the nutrition of surgical patients. More attention is being given to diet and dietary supplements as the importance of these factors in the recovery of patients with "surgical" diseases is being appreciated. Students should work actively with patients, being given responsibility for their diets and being observant of their response to the food ordered. An important member of the study group is the dietitian, who can teach the students to plan adequate and practical diets.

Fat Metabolism. Investigation is being made of the part fats play in general metabolism. A 2-carbon unit in

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fat metabolism has been shown to be transferable from fat to carbohydrate and certain amino acids. It appears that fat formation is not an irreversible process. Further studies are being made to determine the role of vitamins in the structure of coenzymes essential to some of the reactions resulting from fat metabolism.

Acceptance of Juices. The Council is encouraging the production of fruit juices containing high natural levels of ascorbic acid. Orange juice, to be accepted, must contain at least 40 mg. of ascorbic acid per 100 cc. of juice. The product described in the article is frozen. Because it is not heat-treated, the juice should be consumed promptly after defrosting.

Gastric Operations. Observations were made of a group of twenty-five patients who, following gastric operations, had complaints related to eating. It was found that abnormal sugar absorption took place in many cases. Unpleasant symptoms occurred shortly after a meal rich in carbohydrate, or after several hours. These observations suggested that regulation of carbohydrate intake may benefit patients who have submitted to gastric surgery.

Modern Physiologic Concepts. The metabolic activities of the liver and modern treatment of hepatic disease are reviewed. Nutrition has been emphasized, and treatment has been developed to include a high intake of carbohydrate, proteins, vitamins, and lipotropic agents. As adequate controls have not yet been established, it is difficult to evaluate the importance of the various dietary factors. However, high-caloric intake, particularly of carbohydrate and protein, seems to be advantageous, and the administration of certain vitamins is probably beneficial.

Fatty Acids and Infantile Eczema. Certain unsaturated fatty acids may be essential for the maintenance of normal skin. When lard or vegetable oils, rich in unsaturated fatty acids, were added to the diets of patients with eczema, beneficial effects were noted. This was especially true in the case of infants.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 168, May, 1947

*A statistical evaluation of the thiamine and pyramin excretions of normal young men on controlled intakes of thiamine. O. Mickelsen, W. O. Caster, and A. Keys.—p. 415.

*Effect of vitamin B_6 deficiency on the ability of rats and mice to convert tryptophane to N^1-methylnicotinamide and nicotinic acid. B. S. Schweigert and P. B. Pearson.—p. 555.

The role of amino acids in the renal tubular secretion of ammonia. W. D. Lotspeich and R. F. Pitts.—p. 611.

Thiamine and Pyramin Studies. Most studies of urinary thiamine excretion as an empirical indication of thiamine nutrition have been made without a clear understanding of the range of variation in excretion values under controlled dietary conditions. Statistical methods have been utilized in few instances, and the possible significance of the data has not been realized. For this reason, a statistical evaluation of thiamine and pyramin excretions was made. Normal young men were maintained on controlled thiamine intakes over prolonged periods. It required many days at a given thiamine intake level to reach excretion equilibrium. Even when equilibrium had been established, very large individual differences were noted, and there were considerable day-to-day variations. When the thiamine intake was changed, a period of about six weeks was required for thiamine and pyramin excretion values to come to equilibrium with the new intake level. The pyramin excretion data offered several advantages over that for thiamine: greater ease of statistical treatment, smaller individual differences, and the possibility of determining pyramin levels when the excretion of thiamine itself became zero. This study places emphasis on the need for recognizing the variations involved in urinary excretion of thiamine.

Vitamin B_6 and Tryptophane Metabolism. Recent findings have suggested that a vitamin B_6 deficiency may disturb tryptophane metabolism. Conversion to niacin and N^1-methylnicotinamide may be affected. Experiments on rats and mice showed that vitamin-B_6-deficient animals have a reduced ability to convert tryptophane to niacin and its methylated derivative. Observations made following injection of tryptophane indicated that nicotinic acid is formed from tryptophane by synthesis in the tissues, not by microbial synthesis in the intestinal tract. These data, which demonstrate the complex nature of metabolic reactions, suggest new approaches to the study of amino acid metabolism.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 26, March, 1947

*Factors influencing the urinary excretion of calcium. I. In normal persons. E. L. Knapp.—p. 182.

Urinary Excretion of Calcium. Through the study of the urinary excretion of calcium of 606 normal persons, from one to eighty years of age, under standard dietary regulation, the normal range has been established and a new tool provided for the study of calcium metabolism. The quantity of urinary calcium is dependent on an endogenous factor or factors, presumably endocrine, and on calcium intake per unit of weight. Age and sex are not factors, except as they affect skeletal weight. It is thus possible to compare data from subjects of all ages and with varying dietary intakes. Urinary calcium expressed as per cent of calcium intake varies inversely with the intake per kilogram and is an exponential function of the latter. Values for mean, minimum, and maximum normal urinary calcium may be expressed by specific equations. The urinary calcium excretion of subjects below two years of age is within the normal range but below the mean value of older children and adults. Dietary factors other than calcium intake have relatively minor effects on urinary calcium, with the exception of ingested acids, ketogenic diets, or diets with a high calcium to phosphorus ratio, all of which increase urinary calcium, often above maximum normal limits.

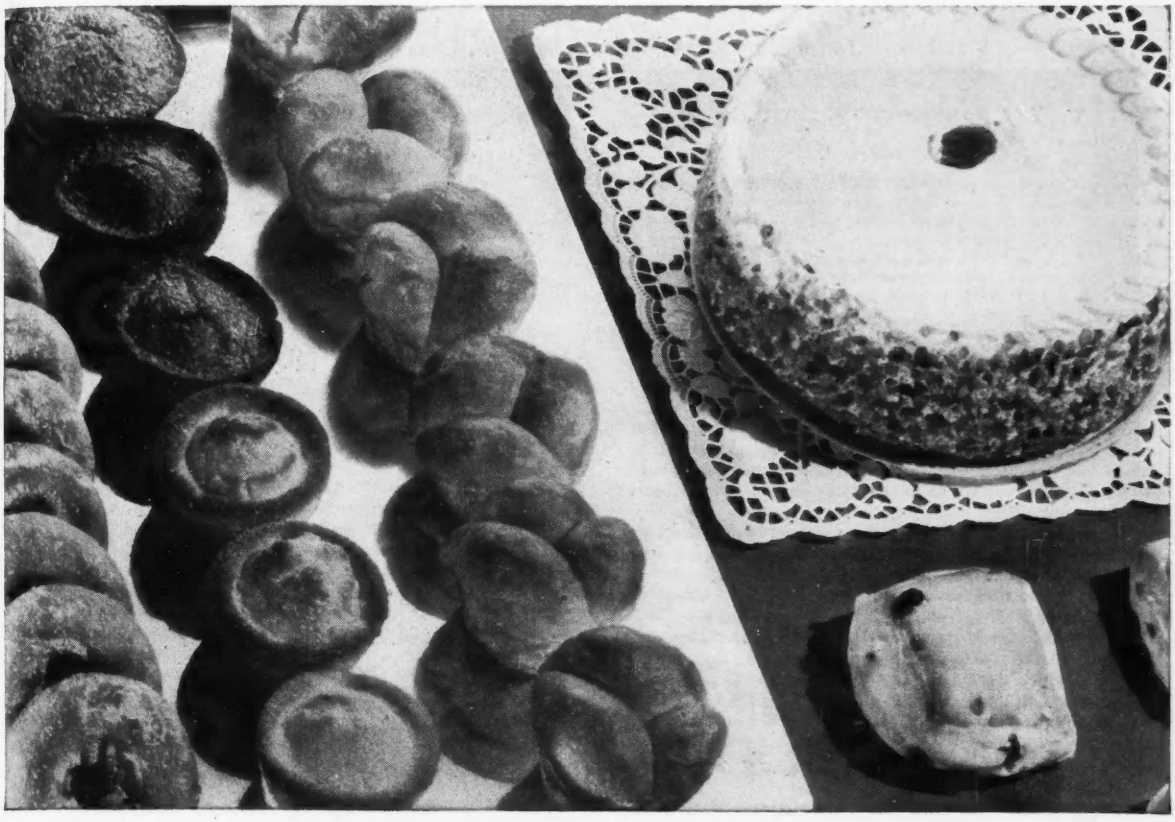
JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 16, December, 1946

*The nutrition problem in the Punjab. K. L. Shourie.—p. 82.

Nutrition Problem in the Punjab. The nutrition problem is dealt with under four headings: (a) available land and food supply, (b) diet surveys, (c) nutritional surveys, and (d) suggestions for improvement of diet. The cultivated land in the Punjab is insufficient to produce even an "emergency restricted diet," as set up by Stiebeling and Ward in the U. S. Other unfavorable factors are water logging, growing decrease in soil fertility, and increasing population. The province is self-sufficient in the production of cereals and pulses only and is badly in need of the so-called "protective foods."

The diet surveys show that the total consumption of calories and protein seems to be satisfactory, although the proportion of protein from animal sources appears small. The calcium, iron, thiamine, and riboflavin content of the diets appears adequate, but vitamin A and ascorbic acid intake does not seem to meet recommendations. Suggestions made to improve the diet of an individual with limited income were: (a) an increased use of green leafy vegetables, (b) use of as much milk and milk preparations as income permits, and (c) the proper preparation and cooking of food.



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THE JOURNAL OF NUTRITION

Vol. 33, May 10, 1947

*A study of ascorbic acid metabolism of adolescent children. C. A. Storvick, M. L. Fincke, J. P. Quinn, and B. L. Davey.—p. 529.
Amino acid content of feeds. I. Leucine, valine, isoleucine, and phenylalanine. B. S. Schweigert.—p. 553.
*The effect of fat level of the diet on general nutrition. I. H. J. Deuel, Jr., E. R. Meserve, E. Straub, C. Hendrick, and B. T. Scheer.—p. 569.
*The effect of fat level of the diet on general nutrition. II. B. T. Scheer, D. F. Soule, M. Fields, and H. J. Deuel, Jr.—p. 583.

Ascorbic Acid During Adolescence. Although the human requirement for ascorbic acid has been determined for adults and for children up to twelve years of age, it has not been estimated experimentally for adolescents. A survey was made of the plasma ascorbic acid values of eighty-one children between the ages of eleven and eighteen. The mean plasma value for the group was 0.56 mg. per 100 cc., which is slightly lower than the value considered adequate in this study.

Eight children between the ages of twelve and fourteen served as subjects in another study. Daily values for plasma ascorbic acid were compared when these adolescents were placed on their usual diet, when they were saturated with ascorbic acid, and when they were receiving the daily allowance as recommended by the National Research Council. An evaluation of the results revealed that plasma values attained during the last-mentioned period of intake were lower than those attained during the saturation period, but above those considered adequate. Adolescent boys and girls may require more ascorbic acid per kilogram of body weight to maintain tissue saturation than younger children or adults.

Fat Level of the Diet. The purpose of these experiments was to determine if there is an optimum fat level in the diet. Under conditions of *ad libitum* feeding, rats were given diets varying in fat content. Better growth, greater physical capacity, and better reproductive and lactation performance were noted when the diet contained at least 5 per cent and not more than 50 per cent fat. Growth was optimum when the diets contained 20 to 40 per cent fat, and the most pronounced differences were observed in males.

Fat Level on Restricted Calories. The effect on rats of variations in fat content under conditions of isocaloric feeding at severely restricted levels of intake was observed. The diets containing fat permitted better growth than the diets lacking in fat. After twelve weeks on the restricted caloric intake, the animals were placed on *ad libitum* feeding of the same diets. Growth, fertility, and lactation were supported better by liberal intakes of fat (10 to 40 per cent) than by fat-free diets.

THE JOURNAL OF PEDIATRICS

Vol. 30, May, 1947

*Celiac syndrome. VI. The relationship of celiac disease, starch intolerance and steatorrhea. D. H. Andersen.—p. 564.

Celiac Syndrome. The classical picture of celiac disease is believed to result from a deficiency of multiple nutritional factors complicating and resulting from basic constitutional disease. The steatorrhea of celiac disease is transitory and, with intensive vitamin and dietary therapy, it disappears within two months; it is viewed as a complication of celiac disease due to a specific deficiency. A consistent and objectively demonstrable characteristic of the basic disease is a deficiency of pancreatic amylase, associated with an excess starch in the feces when starch is fed, and clinical intolerance to dietary starch. In uncomplicated cases the first symptom is the occurrence of repeated bouts of diarrhea with large, foul, pale, foamy stools and an enlarged abdomen. These bouts are usually initiated by an upper respiratory infection. The symptoms respond to a diet high in protein, low in starch, and abundant in vitamins. An attempt is made to evaluate other phenomena of the disease with respect to whether they are part of the primary defect or a result of secondary nutritional deficiency. There is suggestive evidence that the difficulty in protein metabolism, shown by the high requirement for dietary protein and a tendency to hypoproteinemia on a normal diet, may be an expression of the basic disease.

THE NEW ENGLAND JOURNAL OF MEDICINE

Vol. 236, May 22, 1947

*Dwarfism in healthy children: Its possible relation to emotional, nutritional, and endocrine disturbances. N. B. Talbot, E. H. Sobel, B. S. Burke, E. Lindemann, and S. B. Kaufman.—p. 783.

Dwarfism in Healthy Children. A sizable number of physically sound but abnormally small children were investigated. It was noted that some were grossly underweight for their height and that the great majority appeared to have scanty subcutaneous fat stores. Nutritional studies revealed that although the intake of building materials, such as protein, was probably adequate for growth, the total caloric intake appeared to be undesirably low. In the majority of cases this predominantly caloric malnutrition appeared to be related to anorexia secondary to emotional disturbances. In three cases, correction of emotional difficulties resulted in an improvement in appetite that was followed, in turn, by a rapid gain in weight and an appreciable increase in the rate of growth and maturation. A few children failed to resume normal growth when the dietary inadequacies had been corrected. Furthermore, it was found that the growth rate of both poorly nourished and well nourished dwarfs could be increased markedly by the administration of the protein anabolic or growth hormone, methyl testosterone, without any evident change in diet. In a few well nourished dwarfs, growth continued spontaneously at a satisfactory rate after one o. two short courses of testosterone therapy.

The use of testosterone as initial treatment for stunted growth of nutritional dwarfs seems illogical; correction of emotional and nutritional inadequacies commands first attention. On the other hand, when correction of these factors fails to accelerate growth and when the possibility of hypothyroidism has been ruled out, the daily oral administration of about 20 mg. of methyl testosterone for one or two short periods may, especially in retarded boys of adolescent age, show results by an acceleration in spontaneous growth and maturation process. It cannot yet be said, however, that such hormonal therapy is free from permanently harmful effects on testicular function.

NUTRITION REVIEWS

Vol. 5, May, 1947

*Human fitness and the state of vitamin nutrition. A. Keys.—p. 129.
*Present knowledge of methyl groups in nutrition.—p. 131.
*Intellectual functions with restricted intakes of B-complex vitamins.—p. 135.
The digestibility of fats.—p. 155.

Vol. 5, June, 1947

Adequate diets for all peoples—size of the task. J. D. Black.—p. 161.
Present knowledge of niacin in nutrition.—p. 163.
*Glutamic acid administration and intellectual performance.—p. 174.

Human Fitness and Nutrition. Defining good nutrition as "that condition which permits the development and maintenance of the highest state of fitness," the author discusses the relationship of fitness to vitamin intake. Acceptable investigations on this subject are few because

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it is difficult to carry on long-term research and the requirements for control are almost insuperable. It is apparent that better methods of evaluating fitness are needed, but here again many problems are involved. Present evidence indicates that there is no advantage, in terms of fitness, in vitamin supercharging. On the other hand, fitness is not peculiarly sensitive to vitamin deficiencies.

Methyl Groups in Nutrition. Simplicity of chemical structure makes the methyl group unique in nutritional science. Whether a methyl-containing compound serves as a methyl donor depends on the structure of the whole molecule rather than on the methyl itself. The known donors include choline, methionine, and betaine. A dietary lack of methyl may result in impairment of the metabolic reactions which utilize choline or methionine as intact molecules. A lack may also interfere with transmethylation, which plays a fundamental role in metabolism. Choline and methionine as dietary sources of methyl are discussed, and the effects of deficiency are described.

Intellectual Functions and Nutrition. More consideration is being given to the effects of nutritional deficiencies upon behavior. Because vitamins of the B-complex are known to affect the metabolism of nerve tissues, they have been given particular attention. Observations have been made of the intellective performance of individuals maintained on experimentally varied intakes of the B-complex. Although there was no clear evidence of impairment of intellectual capacity, there was a slight decrement in tests requiring speed or continued concentration. These changes were present during severe deficiency states and were accompanied by depression and a lack of motivation for voluntary activities. There is a need for fuller understanding of the effects of nutritional deficiencies upon the varied aspects of human behavior. This can be accomplished by close cooperation among research workers representing different fields of scientific specialization.

Glutamic Acid and Intellectual Performance. Two groups of investigators have studied the effect of natural l (+) glutamic acid present in body protein and food on the intellectual performance of mentally retarded patients. Evidence of improvement in verbal and performance test scores and in personality was obtained in both instances. It appeared that the improvement was due to a better utilization of existing abilities, not to increases in intelligence. One group of authors suggested that glutamic acid may also shorten the periods of memory loss and confusion in psychotic patients after undergoing electro-shock treatments. At present it is not known whether a glutamic acid deficiency was being overcome by the administration of the amino acid. The answer to this problem lies in knowledge of and control over the diet of institutionalized patients. These studies and others suggest that so-called unalterable mental deficiencies may be altered; improvement in brain function may be approached by biochemical means.

PSYCHOSOMATIC MEDICINE

Vol. 9, May-June, 1947

*Psychologic aspects of the medical management of diabetes in children, H. Bruch and I. Hewlett.—p. 205.

Psychologic Aspects of Diabetic Management. Psychological observations on twenty-one diabetic children between the ages of four and fourteen years indicated that family relationships influenced to a wide degree the way in which the family accepted the disease and the way in which the medical regime was followed. Poor regulation was frequently associated with emotionally disturbed families. Families who followed the restricted regime perfectly often expressed a repressive, perfectionistic attitude toward the child. A more lenient medical regime would offer the child a better opportunity for normal personality development. Few families showed tolerant, relaxed acceptance of the task of regulating the diabetes.

REVISTA DE LA ASOCIACION ARGENTINA DE DIETOLOGIA (Argentina)

Vol. 4, July, August, September, 1946

*The lessons derived from twenty-five years of a life of teaching. P. Escudero.—p. 160.
*History of the department of nutrition. P. Lanabure.—p. 179.
*Classification of hyperinsulinism. E. Pierangeli.—p. 204.
*Analysis of the K ration and comparison with the analysis of the National Institute of Nutrition. P. Escudero and H. E. Guaita.—p. 209.

Vol. 4, October, November, December, 1946

*The stabilization of iodine in the manufacturing of iodized salt. P. Escudero and B. Rothman.—p. 241.
*The relationship of the blood levels of vitamin A and carotene to the biophotometric curve. P. Escudero, M. L. Herraiz, and A. Bendetto.—p. 282.

Lessons Derived from Teaching. This was the farewell address which Dr. Escudero gave before his retirement from the professorship of the Nutrition Clinic of the Faculty of Medical Sciences, Buenos Aires. He traced the development of the medical school, which he said was comparable to all of the major medical schools. Within recent years the importance of preventive medicine has been stressed. The Nutrition Clinic, a new specialty, was established in 1936. In this clinic the needs of all types of men have been studied, thus helping to establish the relationship of medical, social, and economic factors to health and disease.

History of the Department of Nutrition. The author traces the development of the nutrition program from 1921 to the retirement of Dr. Pedro Escudero in 1946. In 1921 the first movement to start a nutrition program was begun. The Municipal School for dietitians was established in 1934, opening a new professional field for women. In 1936 the professorship of the Nutrition Clinic was established. In 1942 the teaching plan was revised to include both academic and clinical experience. The faculty was more than doubled by 1944. The contributions which the faculty and workers in the clinic have made to the field of nutrition are increasing yearly.

Classification of Hyperinsulinism. The writer reviews some of the classifications of hyperinsulinism and suggests a simplified classification as follows:

A. Functional
   1. That which can be controlled by medical and dietetic therapy.
B. Organic
   1. Semi-controllable—that which can be controlled by diet, medical treatment, and surgery.
   2. Uncontrollable—adenoma or cancer that is inoperable.

Analysis of the K Ration. In this article the standards of dietary allowances established by the National Research Council of the U. S. are compared with the standards established by the National Institute of Nutrition of Argentina. The Argentine standards are higher in every case.

Iodized Salt. The physiological and pathological factors which alter the iodine requirement of man are discussed. The difficulties encountered in stabilizing iodine in common salt are caused by oxidation and the impurities in the common salt. The method of stabilization recommended by the University of Wisconsin Alumni Research Foundation is suggested.

Blood Levels of Vitamin A and Carotene. Fasting vitamin A and carotene determinations and eight biophotometric readings were made on 100 persons. The blood was

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drawn immediately before the photometric readings were taken. In some subjects the tests were repeated after administering massive doses of vitamin A. In the cases studied, there was no marked relationship between the amount of vitamin A and the amount of carotene found in the blood. The biophotometric curve did not bear a consistent relationship to the blood vitamin A and carotene levels. After administration of massive doses of vitamin A, the blood levels of vitamin A and carotene were more nearly parallel to the biophotometric curve.

REVISTA DE MEDICINA Y ALIMENTACION (Chile)

Vol. 7, January-July, 1946

*The amount of factor N in some foods. Segovis and C. Recabarren.—p. 63.
*Pancreatic diabetes and the thyroid—its relationship with pyruvic acid metabolism. R. Honorato C. and R. Welte A.—p. 69.
*The influence of high fat diets on the increased consumption of oxygen caused by the addition of thyroxin. F. Hoffman, E. S. Hoffman, W. Spalloni, and S. Talesnik.—p. 72.
*Experimental scurvy of the guinea pig—the influence of the anterior hypophysis. A. Gallo and L. Vargus.—p. 81.

Factor N in Foods. These investigators have previously reported the discovery of factor N, which is said to be part of the B-complex. It has been observed that the tendency of rats to consume alcohol is not so great when factor N is present in the diet. A method for determining the amount of this factor in food stuffs is discussed. Foods found to be high in factor N included yeast, liver, and powdered milk.

Pancreatic Diabetes and the Thyroid. Blood sugar and pyruvic acid levels were studied in the white rat. The rats were divided into the following groups: (a) controls, (b) rats receiving 0.225 grains of desiccated thyroid for thirty days, (c) rats having 95 per cent of the pancreas removed surgically, (d) rats experiencing removal of the thyroid in addition to removal of 95 per cent of the pancreas, and (e) rats who had undergone a pancreatectomy and were receiving 0.085 grains of thyroid daily. There was a gradual elevation of the blood sugar in the depancreatized animals. The depancreatized animals receiving the thyroid had a lower blood sugar, but the mortality was higher. The blood pyruvic acid followed the pattern of the blood sugar. The normal animals receiving high doses of thyroid did not show any alteration of either the blood sugar or blood pyruvic acid. The authors concluded that the metabolism of pyruvic acid was an important function of insulin. Statistical methods were used in the tabulation of results.

Influence of High-Fat Diets. Experiments were conducted to discover whether the addition of fat to the diet of an animal receiving thyroid would protect the animal from an elevation of the metabolism. Forty white male rats were selected, and the daily oxygen consumption was recorded for fifty-six days. Four diets were used: one contained a cereal mixture; another consisted of cereal mixture and 40 per cent fat; a third contained cereal mixture, 40 per cent protein, and 20 per cent fat; the fourth was composed of cereal mixture, to which 40 per cent fat was added ten days after the thyroid injections were begun. It was found that the metabolic rate of the rats receiving a high-fat diet plus thyroid was not elevated to the extent noted in the rats receiving cereals and thyroid. There was some elevation of rate when casein was added to the diet; this was attributed to the specific dynamic action of the protein. It was concluded, however, that the addition of the protein did not eliminate the protective action of the fat.

Experimental Scurvy. Normal guinea pigs were placed on scurvy-producing diets. Part of the group received injections of anterior hypophysis extract; the remaining animals received no treatment. Although injection of the hormone did not satisfactorily aid in recovery from scurvy, it did seem to protect the animal from the acute symptoms and lengthen the survival time.

SCIENCE

Vol. 105, May 16, 1947

*Daily nitrogen urinary excretion in people of the working class of Caracas. F. de Venanzi.—p. 524.
Inhibition of heating and lipolysis in seeds. M. Z. Condon, F. R. Andrews, M. G. Lambou, and A. M. Altschul.—p. 525.
*A method of drying partial protein hydrolysates and other hygroscopic materials for nutritional studies. R. J. Westfall, O. Miller, and I. S. Westfall.—p. 530.

Vol. 105, May 23, 1947

*World soil and fertilizer resources in relation to food needs. R. M. Salter.—p. 533.
Inability of thymine to substitute for folic acid in the rat. H. G. Petering and R. A. Delor.—p. 547.
*Experimental diabetes and diet. B. A. Houssay and C. Martinez.—p. 548.

Vol. 105, May 30, 1947

*Comparative nutritive value of casein and lactalbumin for man. A. J. Mueller and W. M. Cox, Jr.—p. 580.

Vol. 105, June 13, 1947

*dl-α-amino-ε-hydroxy caproic acid in the rat. R. Gingras, E. Page, and R. Gaudry.—p. 621.
*Absence of a macrocytic anemia in dogs fed choline or choline plus fat. M. F. Clarkson and C. H. Best.—p. 622.

Daily Nitrogen Urinary Excretion. The diet of the Venezuelan people is poor in high-protein foods, and there is a high incidence of hypoproteinemia, especially during pregnancy and lactation. As determination of the daily urinary excretion of nitrogen is an accurate measure of protein intake, this procedure was used in a study made on 194 people. Of the entire group, 85 per cent eliminated less than 11 gm. of nitrogen over a period of 24 hr.

A Method of Drying Materials for Nutrition Studies. Difficulties encountered in drying a protein hydrolysate by lyophilization can be overcome by concentrating the solution *in vacuo* and by adding dextrin or starch to the concentrated solution. A method of vacuum concentration is described. The procedure is also useful in drying such materials as liver extract for use in experimental diets.

World Soil and Fertilizer Resources. Can the world produce enough to feed all its human inhabitants? Can the world's soil grow all the crops needed? Are fertilizer sources adequate? Do we have the management ability and technology to produce crops and maintain soils? The author gives an affirmative answer. World production from the present world cropland—1 billion acres of new tropical and 300 million acres of extratropical soils—would exceed world food needs for all classes of food except pulses and nuts. This situation could be remedied if part of the production of coconuts were shifted from coconut oil to edible nuts. Cereals, roots and tubers, sugar, and fats and oils would be produced far in excess of the need. However, statistics and scientific findings are not enough. The people of the world must be willing to expend the necessary energy and capital.

Experimental Diabetes and Diet. Investigation was made of the sensitiveness of white rats to alloxan when the diet was varied. Sixteen diets were used and results showed that mortality increased in rats fed a low-protein diet, or a high-lard or ox fat diet. By adding methionine, thiouracil, or coconut oil, the action of these fat diets was corrected. Complete protection was observed when a high-coconut-oil diet was given.

The effect of various diets on rats with experimental pancreatic diabetes was also studied. The high-protein diet showed a protective effect, but the high-lard diet gave unfavorable results. Diabetes appeared first in overfed rats.

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The animals eating a single meal developed the disease more quickly than those eating the same amount of food divided into three meals.

Nutritive Value of Casein and Lactalbumin. Previous studies have shown that methionine supplementation of a casein hydrolysate does not increase the efficiency of nitrogen utilization in man. Therefore, an investigation was made of the comparative effectiveness of intact casein and of lactalbumin in promoting nitrogen retention in man. There was no significant difference between the two proteins. The addition of casein spared 2.33 gm. of body nitrogen; the addition of lactalbumin spared 2.31 gm.

dl-a-Amino-ϵ-Hydroxy Caproic Acid. The biological properties of dl-*a*-amino-ϵ-hydroxy caproic acid were investigated. This amino acid differs from lysine only because it contains a hydroxyl group instead of the ϵ-amino group. Rats were fed rations to which zein, l-lysine, or the synthetic racemic compound were added. The largest weight losses were suffered by the latter group. It was concluded that lysine could not be replaced by *a*-amino-ϵ-hydroxy caproic acid.

Macrocytic Anemia in Dogs. It has been reported that administration of choline or choline plus fat produced in dogs a macrocytic anemia. Because this effect was not observed by these authors, further studies were made. Four dogs were fed a stock diet for at least three months before choline or choline plus fat were added. No trace of a macrocytic anemia was produced.

AMERICAN RESTAURANT

Vol. 31, May, 1947

*Boxman calls for new attitude on personnel. H. F. Boxman.—p. 34.
How to cook and serve birds. J. A. Cline.—p. 36.
*Record keeping for small restaurants. E. R. Wunderly.—p. 58.

New Attitude in Personnel. If a restaurant is to be successful today, its employees must know how to work with other people, be considerate, tactful, and cooperative. However, in the final analysis management determines the success of a business. There are many problems to be considered by one planning to establish a restaurant. Mr. Boxman, who is a restaurant operator himself, discusses these factors and points out the characteristics necessary if a well-run establishment is to be maintained.

Record Keeping for Small Restaurants. There is great value in utilizing one uniform system of accounts. This uniform system means the classifying of income and expenses in a single way instead of leaving it up to each local bookkeeper or accountant. Only with accepted, standardized classifications of income and expense can restaurant and hotel men be sure that they mean exactly the same thing when they speak of food cost, restaurant payroll, or bar expense. The uniform system of accounts for restaurants is divided into two parts: first, the day-by-day records; and second, the general books and closing entries. With such a system it is possible to have a statement of your own operations, and also to make the desired comparisons of your operating ratios with those of similar establishments.

BETTER FOOD

Vol. 52, May, 1947

*Converted rice introduced.—p. 8.
*The New York City high school lunch program. K. C. Wisely.—p. 16.
Pears from Pacific Coast orchards. B. Anderson.—p. 22.
Current ranges for electric cooking.—p. 34.
Packaging foods for freezing. J. Adams.—p. 42.
*The school lunch: a cooperative enterprise. A. Bourquin.—p. 50.
*Frozen lunches save time, food, and disposition. N. K. Masterman.—p. 56.

Converted Rice. A new process enables consumers to eat white rice which is superior in nutritive value. Simple to prepare, it is white and fluffy with every grain separate when cooked. The method of processing places added vitamins and minerals in the kernel; and the starch, which has been gelatinized, seals in the nutrients. The process should be of value to people whose main diet is white rice.

School Lunch Program. Most of the New York junior high schools have lunch programs. Those with limited facilities are served by a central kitchen, which also serves the elementary schools. Junior high schools and elementary schools equipped with cafeterias are supervised by the Junior High School Lunch Management. Individual schools serve from seventy-five to 385 nutritionally complete lunches daily. About one tenth of these are served free of charge. Type A and C lunches and à la carte foods are available. Lunchroom conduct is supervised by the school staff, and the pupils are developing a social training program. The senior high school lunchrooms give larger portions, a wider range of choice, and a more elaborate menu. There is a constantly increasing number of pupils taking advantage of the nutritionally complete Type A lunch.

The School Lunch. The primary aims of school lunch are to provide children with food for optimum nutrition and health; to develop correct eating habits; and to give the family group a knowledge of its food needs so that meals prepared at home may be wholesome and attractive. There is a great need for a closer tie-up between the school lunch program and the home. Communities can help to develop the school lunch program in several ways. They can advertise what is being done on the program. The daily papers might carry the menu to be served at the school lunch. Also, menus might be sent home with the children. If the school lunch program is to be truly effective, the community must give it adequate support.

Frozen Lunches. Hours can be saved by preparing lunches in quantity and freezing them. In this project sandwiches were frozen and stored for as long as six weeks with no apparent loss in quality. It took from 3 to 3½ hr. to thaw a package of sandwiches. Appetizers, soups, entrees, salads, and desserts which were also frozen proved to be acceptable.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 1, December, 1946

*What about food costs? M. deG. Bryan.—p. 34.
*Low dining fees, high food costs. E. B. Cook.—p. 35.

Vol. 2, February, 1947

Food service on cooperative plan. G. C. Hoke.—p. 29.

Vol. 2, April, 1947

*This building for food only. L. W. Fry.—p. 15.
*What about nonacademic wages? R. F. Moore.—p. 20.
High altitude cooking. E. J. Thiessen.—p. 32.

Food Costs. Replies from seventy-five colleges and universities were received in a survey of various types of food services. The resulting figures were interpreted to suggest trends and needs. Increasing charges to meet rising costs

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For ingredients... Clapp's Instant Cereal is made from the following ingredients: whole wheat meal, corn meal, wheat germ, malt, nonfat dry milk solids, calcium phosphate, dried brewers' yeast, salt, and iron ammonium citrate.

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Ash (total minerals) 3.8%	Riboflavin (B_2) 0.3 mg. per 100 gm.
Crude Fiber 1.6%	Moisture 5.7%
Calcium (Ca) 800 mg. per 100 gm.	Calories per ounce 102.
Phosphorus (P) 580 mg. per 100 gm.	

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of food and labor and a trend toward cafeteria service were apparent. Enlargement and re-equipment of dining services is being delayed for a number of reasons. The survey also indicated the need for a uniform basis of food cost accounting and the desirability of pooling information on labor costs and labor policies.

Dining Fees and Food Costs. Low cost lodging and dining facilities have long been factors in encouraging more students to attend college. It is difficult for college dining halls to maintain this program in the face of currently high food costs, wage costs, and failure of standard sources of supply. However, certain practices which were inaugurated during the war to take care of the abnormal demands have helped the college food services meet the present emergency. Much was learned from the operations of a "serviceman's mess hall." A few of the innovations are listed.

This Building for Food Only. Construction will soon be completed on the new food service building at the University of Michigan. Planned by university personnel and an expert in food engineering, the building is to provide adequate refrigeration and dry storage to fulfill requirements for all kitchen facilities of the University. Also included are processing departments consisting of a butcher shop, a bakery, and an ice cream manufacturing unit. Included in the article are floor plans and a flow chart.

Nonacademic Wages. A survey of nonacademic salaries in 273 colleges and universities revealed that an average increase of 22 per cent had occurred since January, 1945. The Pacific Coast paid the highest average salaries. The national average monthly pay of dietitians was $201. Three other classifications—senior accountant, power house engineer, and electrician—received higher salaries.

CONSUMERS' GUIDE

Vol. 13, May, 1947

*How to feed 10 million mouths.—p. 3.
Saving ways to help you make the most of your food money and diets safe for health.—p. 8.
*Food for peace.—p. 13.

Feeding 10 Million Mouths. Inefficient marketing conditions add extra charges to goods. The increased cost is felt by the consumer, the farmer, the wholesaler, and the retailer. In New York City, the cost of distributing fruits and vegetables within the city is almost as much as the cost of producing and transporting them to the city. The job of getting more up-to-date, efficient, and less costly marketing facilities in large terminals is too big for any one group to undertake. The Department of Agriculture has been studying marketing facilities for a number of years and has brought together specialists in all phases of the field. A consultation service is provided on request. Some of the state-wide contemplated projects include plans for a state-wide system of concentration and terminal marketing facilities, and another for a centrally located market. Improvement of marketing conditions is a public problem and responsibility.

Food for Peace. The downward spiral of lack of food, clothing, and shelter that is affecting the British and American zones of occupation so violently is the chief cause of the hunger, lack of agricultural and industrial production, and disruption of the transportation and the economic system of western Europe. Imported food is the immediate solution to unlocking the door to production in western Europe. Germany's agricultural production was cut about 65 per cent last year (due to lack of seeds, fertilizer, equipment, and skilled labor). In the British and American zones, children under six years of age and the prospective and nursing mothers were able to obtain special priorities and supplementary food to keep them in good health. With other groups the trend goes downward with more than half the children and adolescents in a deplorable condition. Normal consumers, twenty years of age and up, are sometimes too poor to buy the 1550-calorie ration which is available. Help is needed in Europe because the economic system and the food supply are dependent upon each other.

FOOD INDUSTRIES

Vol. 19, April, 1947

*Wax coating frozen foods—p. 77.
*Cold storage rooms converted to quick freezers. J. F. Stone.—p. 86.
What's ahead in milk processing—Part II. M. E. Parker and E. S. Statcler. —p. 92.
*Who is liable for trichinosis? J. A. Tobey.—p. 98.
*Spray dried whole eggs improved with carbohydrates. E. H. Dawson, E. A. Wood, and E. H. McNally.—p. 107.
*Packaging dried fruit.—p. 183.
Canning fish.—p. 183.

Vol. 19, May, 1947

New device for grading pectins. H. S. Owens, O. Porter, and W. D. Maclay. —p. 96.
What's ahead in milk processing—Part III. M. E. Parker and E. S. Stateler. —p. 99.
*J-E: what it is and how it is installed. C. J. Sammond.—p. 104.
*High vacuum technics utilized for drying orange juice. L. V. Burton.—p. 107.
*How to control the quality of frozen cooked foods. G. A. Fitzgerald.—p. 113.
*Changes in fats and oils during freezing and thawing.—p. 122.
*Electronic sterilization of canned foods. J. M. Jackson.—p. 124.
*Four grade standards announced recently.—p. 146.
Frozen milk product.—p. 204.

Wax Coating Frozen Foods. Frozen foods are dip-coated with melted thermoplastic wax which immediately hardens into a tough and flexible wrapper. The odorless, tasteless, non-transparent wax adheres closely to foods, eliminating air pockets. This coating is easily stripped from frozen foods. Being a moisture-proof wrapper, meats have been held one year without freezer burn or discoloration. The recommended procedure for preparing wax-coated frozen products is given.

Quick Freezers. When converting cold storage rooms to quick freezers, the choice of a proper type and amount of insulating material should be carefully made. Other important factors are durability of insulating material, resistance to moisture or air infiltration, chemical inertness, and resistance to odors. An example of how one cold storage room was converted to a quick freezer is given in detail.

Trichinosis. This appears to be the first published study of court decisions involving damage claims for trichinosis. Cases in twelve states are reviewed; the decisions vary, but the following is the general rule: trichinae-infected pork, sold for human consumption after proper cooking, usually cannot be considered an unwholesome product which will give rise to an action for negligence. However, if this product were sold for consumption without cooking or sold when improperly cooked, an action for negligence might be valid. In a number of states, disease due to trichinae-infected pork will sustain an action for breach of implied warranty as to the fitness of the food for the purpose intended. All producers, manufacturers, and others concerned should exercise care in the production and sale of pork and pork products.

Spray Dried Whole Eggs. Carbohydrates exert a protective effect during drying and retard deterioration in storage when added to whole eggs before spray drying. The addition of 10 per cent lactose is preferred for general use, except in scrambled eggs. A 20 per cent sucrose addition is preferred in sponge cakes. The possibility of long storage for sucrose and lactose-treated eggs held at lower temperatures is suggested by this study.

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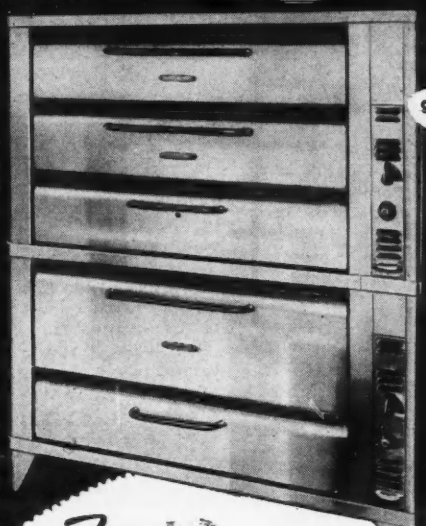

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Job Evaluation. If job evaluation is to be successful, a satisfactory worker-management understanding of the entire procedure must be established. Contained in this article are suggestions which will help an organization develop a wage pattern. Forms for a manual of procedure and a job evaluation comparison sheet are included.

Drying Orange Juice. Costly attempts have been made to preserve orange juice. These ventures have failed because of the difficulty in obtaining a palatable product. Until quite recently little was known about enzymes and their control. At the present time, however, developments along three lines have met with considerable success. Canned orange juice and a frozen concentrate are popular. The third product, a hygroscopic orange-colored powder resulting from dehydration of the concentrated juice, has a merchantable life. It compares favorably with refrigerated fresh orange juice. A detailed description of the process is given.

Quality of Frozen Cooked Foods. A quality control program for frozen cooked foods entails controlling the quality of: raw material, foods during processing, plant sanitation, foods during distribution marketing, and consumer handling. There must be an intensive application of all phases of food technology before all the processing problems are solved. The processing of frozen cooked foods presents many opportunities for bacterial growth. The author stresses methods for maintaining the high standards necessary to produce high quality products which will make for a prosperous frozen food industry.

Changes in Fats and Oils. Experiments on the freezing of fats, oils, and their products have resulted in information which can be applied to storage and shipment of these goods in cold weather. Low temperatures do not affect oleomargarine, shortenings, and lard except to temporarily solidify or harden them. Freezing temperatures did not affect the cake baking quality of shortenings, provided they were reconditioned to a uniform temperature before baking and proper baking procedure was followed. Salad dressing and mayonnaise in the cold state thickened, jelled, and sometimes the emulsions separated. Usually however, they were not permanently impaired by freezing.

Electronic Sterilization. The commercial canning industry has manufactured food products free from botulism for over twenty years. This record must be maintained. Sterilization by electronic means has not been established as a reliable method as yet. There are two basic approaches to the problem: (a) the microorganisms might be destroyed by some lethal effect of an electronically-produced radiation without the aid of heat; or (b) the microorganisms and enzymes might be destroyed by using electronic radiation (radio frequency power) to produce heat. Although there is some evidence of the killing of microorganisms by radio frequency radiation without apparent aid of heat, there is no conclusive evidence of complete sterilization of heat-resistant spores of food spoilage bacteria. Since there are still many and diverse problems concerning irradiations without heat for sterilization of canned goods, it appears best that further study in this field be left to academic institutions. The possible use of radio frequency heating as a means of sterilization has a more definitely established scientific basis, but there are many practical problems to be solved before the method can be successfully applied.

Four Grade Standards. Canned tangerine juice is now covered by U. S. standards for grades. Berries for processing, with the exception of raspberries, are also to be covered by U. S. standards. Frozen strawberry standards are to be revised, and frozen spinach is the subject of another proposed revision.

HOSPITAL MANAGEMENT

Vol. 63, May, 1947

*Accounting for hospital food costs and methods of food control. J E McNamara.—p. 92.
If your hospital food service is buying a refrigerator.—p. 106.

Food Cost Accounting and Food Control. This article gives a complete review of the duties of a food cost accountant. If records are kept as suggested, and the dietitian evaluates them properly, methods of food control can be greatly improved.

HOSPITALS

Vol. 21, June, 1947

*American architecture through Swedish eyes. G. Birch-Lindgren.—p. 45.
*Infant formulas. No. 2. Preparation techniques. A. J. J. Rourke.—p. 66.
Wartime industrial feeding program ends. Comment.—p. 70.

American Architecture. Included in this discussion of American and Swedish hospitals is a comparison of food service units. American hospitals give more thought and care to the preparation of food, have kitchen departments which take up more space, and employ more people to take charge of food service. Certain aspects of Swedish kitchen equipment seem to be superior, especially steam boilers and broilers. The author points out the need for better kitchen planning in America.

Infant Formulas. Suggested methods of formula preparation are given for both small and large hospitals. The procedures were developed after a bacteriological study of preparation techniques was made at five California hospitals. Included in the article are photographs illustrating various pieces of equipment.

HOSPITAL TOPICS AND BUYER

Vol. 25, April, 1947

*Accounting for hospital food costs and methods of food control. J.E. McNamara.—p. 25.

Accounting for Hospital Food Costs. Accounting for food costs should be performed under the supervision of the hospital accountant. If food cost accounting is to be effective, accurate records must be kept. If cost fluctuations are to be detected promptly, daily calculations must be made. Methods for computing daily costs are described.

HOTEL MONTHLY

Vol. 55, May, 1947

*Is 20% of your payroll excess costs? F. W. Eckert.—p. 27.

Payroll Costs. The excessive payroll costs of nine out of ten hotels represent at least 20 per cent of the total payroll. Management is responsible because management is in charge of: (a) planning the work program; (b) scheduling the work hours; (c) providing adequate tools and facilities; (d) setting forth clear instructions for each job to be done; (e) establishing fair work performance standards for each job; (f) maintaining supervision to keep the work flowing according to scheduled pace; and (g) rewarding the worker directly or indirectly in proportion to quantitative and qualitative work output. Employees' output should be increased by closer scheduling of their work; working conditions should be improved to increase output and make for happier employees; the quality of job analysis, instruction,

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and training should be raised; and every person on the job should be assigned and utilized to his full capacity.

THE MODERN HOSPITAL

Vol. 68, May, 1947

Job evaluation and job control in relation to personnel management. S. S. Preston.—p. 79.
*Good food builds good will. M. C Kelly.—p. 102.
*Labor problems are still with us. M. A. Kent.—p. 104.

Vol. 68, June, 1947

*What is the job? How much is it worth? S. S. Preston.—p. 71.
*We need better cooks. K. A. McHenry.—p. 102.

Good Food Builds Good Will. If food service is to gain the desired reputation, basic requirements must be met. Attention should be given to the quality of the food purchased, the selection of pleasing combinations, tasteful preparation, and attractive arrangement of the food when it is served. Selection of employees is also vitally important. The personnel policies followed at the Aetna Life Insurance Company Cafeteria are designed to attract and keep desirable employees. All of the factors mentioned are important to good food service and may be applied to any organization. Particular application is made by the author to hospital food service.

Labor Problems. There are a number of reasons why hospitals experience labor difficulties. The author describes the plans being carried out in the Ohio Valley Hospital, Wheeling, West Virginia, by which labor difficulties are being overcome. A challenge to dietitians is presented, pointing out the necessity for placing greater emphasis upon "good food" and for seizing opportunities to improve dietary departments.

What Is the Job? The relative value of each job in an organization must be determined before a system of wage control can be established. One method by which to evaluate a job systematically is based on tangible reasons why a given job is of a certain value. These evaluation factors include occupational qualifications, such as experience, education, and training; performance requirements; environmental factors; responsibility for personnel; and personal convenience. The job control committee determines evaluation points which are governed by the "degree of intensity" of performance and environmental factors. With these findings, wage groups can be established and a wage scale can be built.

We Need Better Cooks. If hospital food is to meet with public approval, the ability of the cook must be considered. A course of training for cooks has been developed by the Veterans Administration. In preparing for the course, cooking procedures were standardized and requirements established for the position of cook. A six-month course of training, followed by twelve months of supervised on-the-job experience was inaugurated. As a result, food production and service have definitely improved.

NATIONAL SAFETY NEWS

Vol. 55, March, 1947

*Energy restored.—p. 7.

Vol. 55, May, 1947

*Fair and warmer.—p. 26.
Bottles and broken glass.—p. 40.

Energy Restored. The recent war gave impetus to the restaurant business in industry. Four types of service are used: cafeterias, canteens or lunchrooms, mobile units, and lunch-box services. Most employers feel that snacks in mid-morning and mid-afternoon are an aid to production and morale. A survey has shown that candy, soft drinks, milk, and cigarettes are the most popular canteen items.

Fair and Warmer. In hot weather certain precautions should be taken to maintain health and efficient performance. It is important that the body requirement for water be met. In order to prevent the distressing symptoms of heat cramps and heat exhaustion, salt tablets should be supplied. Simple rules of personal hygiene must not be forgotten. The avoidance of too many calories and dietary fads is also stressed in the program for summer comfort.

PERSONNEL JOURNAL

Vol. 25, April, 1947

*The story of your salary. H. T. Stephens.—p. 330.
Wage incentives. J. K. Louden.—p. 338.

Salary Administration. A salary administration program can be effective only when the employees affected are familiar with the basic principles on which it is constructed and the mechanics by which it operates. In one company employees were informed about the salary administration program in three steps: (a) After deciding to install the program, the president of the company sent a letter to each employee explaining the purposes of the program and asked for each employee's cooperation. (b) A handbook was written and issued to all supervisors of salaried employees, setting forth in detail the operation of the job evaluation plan and the system of performance reviews. (c) A simple explanation was given to all employees of the company's salary administration program, as it was operating.

PRACTICAL HOME ECONOMICS

Vol. 25, May, 1947

*Centralized school lunch management. M. McMillin.—p. 295.
Brookline adopts federal program. M. L. Cronan.—p. 298.

Vol. 25, June, 1947

Dedicated to mealtime enjoyment. P. A. Webbe.—p. 360.
*Qualified dietitians needed. L. M. Refshauge.—p. 364.

School Lunch Management. Last September the school cafeterias of San Bernardino, California, were brought under centralized management. Every school in the city is provided with a hot lunch program. A full-time dietitian has been employed to plan menus, try new recipes, test old ones, supervise preparation of the lunches, and keep the meals up to the standards set by government authorities. The result of centralization has been better food, planned and purchased more efficiently.

Qualified Dietitians Needed. The dietitian is being called upon more and more, as the scope and responsibilities of the dietetic profession are being realized. The author, who as Educational Director of the American Dietetic Association is in a position to appreciate the opportunities and challenge offered by the profession, describes the preparation which is necessary for qualification as a dietitian. Miss Refshauge also gives a picture of the various phases of work into which dietitians are entering and points out the advantages of training and professional status which give the dietitian opportunities for a gratifying and compensating career.

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RESTAURANT MANAGEMENT

Vol. 60, May, 1947

*How to take a "human inventory." W. Byrd, Jr.—p. 30.
Principles of kitchen layout. A. W. Dana.—p. 42.

Taking a "Human Inventory." A written employee inventory can aid management in many ways. It gives factual information to aid in strengthening weak spots in the organization, serves as a guide to better placement of personnel, and is a means of stimulating employee interest by giving each employee knowledge of his ratings. These advantages and others are discussed. An example of an employee inventory form is included along with directions for handling the records.

WHAT'S NEW IN HOME ECONOMICS

Vol. 11, April, 1947

*The profession. B. B. McLean.—p. 35.
Nutrition made interesting. D. E. Shank.—p. 58.
*Notes from here and there.—p. 110.
Vegetable combinations and cookery. W. S. Pendergast.—p. 149.

Vol. 11, May, 1947

*Food courses interrelated with other studies. D. E. Shank.—p. 35.
*Employees should know the rules. W. S. Pendergast.—p. 118.

The Profession. Today the demand for trained home economists is rapidly growing but the supply is not increasing. Every effort must be made to attract more teen-age girls into home economics classes. There is a recruiting job to be done. A few pertinent suggestions along this line are brought out, and the importance of vocational guidance in the school curricula is stressed.

News Notes. Live, shucked oysters stay alive at least a week when they are shelled, then packed in sterile sea water, and finally hermetically sealed in transparent rubber bags that hold a pint. . . . A new banana-type squash has been developed which weighs 3 to 4 lb. and is about 1½ in. thick. It is called the "Rainbow" squash because of its smooth, thin-striped shell. The flesh is light orange-yellow and excellent when baked, steamed, or in a pie filling.

Food Courses Interrelated with Other Studies. There is added reality in high school subjects when theory is put into practice by using a number of other subjects as tools in food and nutrition courses. Education becomes more functional when students understand these interrelationships. The many phases of the food field and of nutrition can contribute to discussions in such classes as language, social science, history, and art. Also, home economics makes very practical use of the various sciences, such as chemistry, biology, and physics. High school subjects can make use of the functional aspects of home economics education and thereby promote successful adjustments to a variety of real-life situations.

Employees and Rules. Today the subject of fair policies is of great importance to lunchroom managers and all people in positions of administrative responsibility. To develop and carry out personnel policies which are in line with the best contemporary thinking, and which are fair and fairly administered, information should be written down and made available to all employees. There are several ways in which the desired information can be acquired. These are listed.

Army Announcements Concerning Personnel

The following Medical Department Dietitians were promoted during June, 1947.

Second Lieutenant to First Lieutenant

Bitters, Virginia K., R-2411
Fox, Janet E., R-2440
Gable, Clara, R-2461
Gervais, Barbara A., R-2392
Gould, Rosemary M., R-2386
Greene, Helen A., R-2410
Hughes, Rosamond F., R-2466
Sheret, Virginia, R-2399
Walsh, Kathleen B., R-2419

The War Department has released the following official list of names of Medical Department Dietitians (not previously announced) who have been separated from service:

Captains

Fesenmyer, Mary K., R-1203, Box 74, Custer City, Pa.
Toolan, Vivian D., R-749, 17 Delaware Ave., Carbondale, Pa.

First Lieutenants

DeCock, Leona R., R-2379, Hysham, Mont.
DeMartini, Helen M., R-2345, 721 Lawrence Ave., Ellwood City, Pa.
Dolene, Emily A., R-2375, 573 E. 140 N. St., Cleveland 10, Ohio
Dunnigan, Margaret M., R-1143, 159 W. 2nd St., Niles, Ohio
Errico, Leonora R., R-2234, 30 Ida St., Providence, R. I.
Gable, Elizabeth, R-2127, Stewartstown, Pa.
Gertsen, Alice M., R-4, 42 Ridlon Rd., Mattapan, Mass.
Goodman, Susan R., R-2198, 401 Marian Ave., Pittsburgh, Pa.
Green, Catherine, R-2091, Greensboro, Fla.
Jensen, Edith I., R-2287, 728 Tracy St., Audubon, Ia.
Jones, Blanche D., R-2244, Route 1, Box 292, Oregon City, Ore.
Keefe, Mary J., R-2128, 75 Circuit Ave., Waterbury, Conn.
Keyes, Henrietta G., R-2200, Union Star, Mo.
Long, Mary E., E-2131, 732 W. Washington St., Napoleon, Ohio
Malone, Ann, R-2383, 3439 Linda Vista Terr., Los Angeles, Calif.
McLaughlin, Marie, R-233, Sussex, Wis.
Middlesworth, Naomi F., R-2374, 628 W. Summit St., Ann Arbor, Mich.
Morley, Lois J., R-2384, Harlowton, Mont.
Murphy, Elizabeth, R-2365, Waterville Rd., Farmington, Conn.
Parsons, Jean, R-2356, 621 N. Chautauqua Ave., Wichita, Kans.
Skellchock, Julia V., R-1356, 439 W. Patterson St., Lansford, Pa.
Stafford, Helen R., R-2381, 1610 Lake St., Lawton, Okla.
Sturdevant, Jean E., R-2318, 1255 So. 25, Lincoln 2, Neb.
Thomas, Betty K., R-994, 41-1st St., Colver, Pa.
Trocinsky, Frances J., R-2354, 506 N. Meade Ave., Glendive, Dawson, Mont.
Whitehead, Margaret, R-908, 523 Caldwell St., Aqua, Ohio

Second Lieutenants

Anoszko, Anne B., R-2390, 4835-24th Ave., Kenosha, Wis.
Dore, Marian V., R-2371, Denny Way, Seattle 22, Wash.
Fibel, Marie, R-2484, 97 Arden St., New York, N. Y.
Luessen, Evelyn L., R-2369, 5842 Valley View Ave., Cincinnati, Ohio
Rogers, Phyllis M., R-2360, P.O. Box 136, Ft. Collins, Colo.
Schill, Eileen D., R-2348, 926 Jancey St., Pittsburgh, Pa.

First Lt. Mary L. Gill, R-5, previously reported as separated from the service, has been recalled to active duty.

War Department Announcement

The War Department has announced that the time limit for applicants seeking Regular Army commissions in the Army Nurse Corps and the Women's Medical Specialist Corps has been extended to September 30, 1947. The previous expiration date was July 31st. Application forms may be secured at Army hospitals, Army headquarters, Placement and Counseling Service for State and District Nursing Associations or from the Surgeon General's Office, War Department, Washington 25, D. C.

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News Notes

A.D.A. Loan Recipient. The Committee on Loan Fund for Graduate Study is pleased to announce that the first recipient of the loan granted by the American Dietetic Association is to be Mildred Bowers. Miss Bowers has been granted the loan for 1947–48 to aid her in working toward a doctor's degree at Cornell University, Ithaca, New York. She is a graduate of Utah State Agricultural College, Logan, and holds a master's degree in institution management from Teachers College, Columbia University.

In her professional work Miss Bowers has been instructor in foods and nutrition, Branch Agricultural College, Cedar City, Utah; director of home service, Mt. Fuel Supply Company, Salt Lake City; assistant professor of institution management, Iowa State College; and director of food service, University of Utah Union Building, Salt Lake City.

At Cornell Miss Bowers plans to conduct investigations which will lead to the development of quality control of quantity food production in the area of baking. She will study experimental methods of making cakes, using different sugar ratios and three methods of machine mixing —the dump, pastry blend, and conventional methods. As a result of these investigations, she hopes to develop specifications for methods, as well as formulae, and to outline machine techniques in more detail than is now available.

Army Reorganized Hospital Food Service. A directive dated June 3, 1947, pertained to the implementation of the food service program of the Office of the Surgeon General. Under this directive, the Chief, Dietetic Consultants Division, is designated as Hospital Food Service Supervisor and in addition to her other assigned duties will be directly responsible to the Surgeon General for the operation of the food service program in all general hospitals.

The titles of "Mess Officer" and "Director of Dietetics" have been abolished, and these officers have been replaced by the "Hospital Mess Administrator" and the "Hospital Food Service Supervisor," who is the Chief Dietitian in each general hospital.

The new Hospital Mess Administrator will be directly responsible to the commanding officer of the hospital for the proper administration of the hospital fund, maintenance of accounting records, receiving, storage, and procurement of equipment and supplies requisitioned by the chief dietitian, maintenance of equipment, and procurement of personnel for the food service program.

The new Hospital Food Service Supervisor will function as Post Food Service Supervisor where a hospital is independently located. Where it is physically a part of another installation for which a Post Food Service Supervisor is designated, the Hospital Food Service Supervisor will function in the hospital only, but will cooperate with the Post Food Service Supervisor in all matters of mutual concern.

The Hospital Food Service Supervisor will also be responsible for the development of a continuous training program for hospital food service personnel, geared to attain the highest possible incentive in advancement. Such a training program will permit steady advancement, step by step, from the lower graded positions to cooks and mess stewards.

As outlined, the training program will include instruction in the proper use and care of all mechanical pieces of kitchen equipment, and each person will be awarded a proficiency certificate when he is qualified for the operation of each machine. Special training will be given for hospital diet cooks, with emphasis on special diet requirements and food service. It is felt that through such a training program, the following results may be anticipated: improved efficiency, better sanitation, better overall kitchen operation, reduction in wear on equipment, and improved safety conditions, as well as an incentive for advancement.

National Live Stock and Meat Board Annual Meeting. The annual reports to the officers and directors and the live stock and meat industry included the results of thirteen research studies supported at least in part during the past year by the National Live Stock and Meat Board.

Dr. C. A. Elvehjem, University of Wisconsin, reported developments in the assay of amino acids and the determination of amino acids in various meats. In studying the effects of cooked pork on reproduction and lactation, he reported that this meat supported satisfactory reproduction and birth of healthy young, but lactation was inferior to that obtained with rats fed on beef or casein. Supplementation of the diets with fresh liver improved lactation. It was also found that high-fat diets are not necessarily undesirable for reproduction and lactation, providing a higher level of vitamin intake is used.

Dr. L. S. Schweigert, Texas Agricultural and Mechanical College, reported preliminary data indicating that wheat and milk diets, which have been previously considered adequate for growth, reproduction, and lactation in the rat, are markedly improved by the addition of meat.

Dr. Ruth Leverton, University of Nebraska, found preliminary indications that improvement in hemoglobin values in infants resulted from early additions of meat to the diet.

Dr. Pauline B. Mack, The Pennsylvania State College, found improvements in various clinical and laboratory findings when meat was used ten times per week rather than twice per week in two orphanges. Her studies are reported in detail in the June, July, and August issues of this JOURNAL.

Other studies reported included two on meat cookery and its effect on vitamin retention, two on fats and fatty acids, and one on frozen meats.

Ohio Dietetic Interns' Projects. In the November 1946, issue of the JOURNAL an editorial concerning the annual contest among dietetic interns in Ohio was described. The contest, sponsored by the Ohio Dietetic Association, was initiated to stimulate student interest in the Association's program and in research activities. This year's contest for first prize was a tie between Carolyn Elizabeth Lloyd, who will complete her training at St. Luke's Hospital, Cleveland, in September, and Lillie T. Mahara, who has been a dietetic intern at Good Samaritan Hospital, Cincinnati, for the past year.

Unfortunately, neither Miss Lloyd's nor Miss Mahara's projects were readily adaptable for publication in the JOURNAL.

Miss Lloyd's project was to stimulate dietary instruction

DOES *TALK* WORK FOR YOU?

I'M SOLD ON WORKING WITH FINE FOODS... BECAUSE THEY MAKE PEOPLE HAPPIER.
FINE FOODS GET MY VOTE, TOO... AND THEY EARN US VALUABLE PREMIUMS.

High quality foods mean happy patients and employees . . . happy people who will *talk for you!* So serve them the kind of food they know and like, the brands they enjoy at home. Serve America's favorites . . . the quality products of General Foods . . . MANY OF THESE GENERAL FOODS PRODUCTS OFFER VALUABLE PREMIUM COUPONS . . . The valuable premium coupons you have found packed with Post's Cereals are *now* also packed with Jell-O, Jell-O Puddings, Calumet Baking Powder, and many other General Foods institution products. Save these premium coupons. Take your choice of a host of amazing premiums, valuable for both personal and business use. Thus you profit and you please your patients and employees by serving top-ranking General Foods institution products. Write for your free catalog that lists the premiums and the number of coupons packed with each General Foods product. General Foods Premium Dept., Battle Creek, Mich.

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PEOPLE WHO TALK ABOUT GOOD FOOD
...TALK ABOUT GENERAL FOODS!

in the out patient clinic of St. Luke's Hospital. To encourage patient participation, a question box was provided where patients could drop written questions concerning food problems. The questions were collected at various intervals, and the answers were placed on a bulletin board where they could be read by all coming to the clinic. At the same time, a series of posters, which were changed daily, pointed up interesting food facts and were used to stimulate patient interest. The posters proved to be of interest, not only to patients, but also to hospital personnel.

Miss Mahara's project consisted of preparing a series of recipes used at Good Samaritan Hospital for diabetic patients. The recipes were calculated according to the available glucose in the different foods, and were figured for one serving each. The collection includes luncheon dishes, molded salads, other types of salads, salad dressings, and desserts.

Puerto Rican Institute for Dietitians. The University of Puerto Rico and the Puerto Rico Dietetic Association sponsored an Institute for Dietitians from April 7 to May 2 at the University of Puerto Rico. The program was planned by Dr. Lydia J. Roberts, acting head of the Department of Home Economics at the University, and France Berkeley Floore from the United States. Daily afternoon sessions were held in the library of the Home Economics Building, except for one day a week when a field trip to hospitals was scheduled. In addition to the professional group of students and graduates who attended, one American hospital administrator was included in the attendance.

The program was planned primarily to emphasize the administrative aspects of the dietitian's job, but clinical, nutritional, and educational aspects were also covered. Some of the subjects of the discussions were: teaching employees sanitary dishwashing with improvised equipment; the handling of labor problems; the dietary department with and without a dietitian; control of roaches and ants in the dietary department; physical layout and duties of the staff in an ideal dietary department; thiamine and riboflavin requirements as they are now determined; nutritional deficiency diseases and their prevalence in Puerto Rico; and a symposium on how to improve the hospital diet, including the viewpoints of the hospital administrator, the patient, a nurse, an interne, and a dietitian.

Miss Floore, who went to Puerto Rico immediately after returning from Europe where she worked with UNRRA, writes that the Puerto Rico Association has grown from a membership of two island-trained students when she was there twenty years ago to 150, and that they are now a progressive, cooperative group. She reports that in the twenty years since she was first in Puerto Rico, there have been many progressive changes, including federal housing projects and child and school feeding programs.

A. D. A. Members Receive Honors. A $750-grant from the Evaporated Milk Association has been awarded to Ruth L. Pike by the Fellowship Award Committee of the American Home Economics Association. Miss Pike, who has been at The Pennsylvania State College, received the grant to help in her work toward a doctorate at the University of Chicago. She plans to study the effect of tryptophane restriction. Recently published in this JOURNAL was a short study by Miss Pike on the dietary habits of veterans' families at Pennsylvania State College.

Phyllis Ruth Rowe was recently chosen as the student receiving the highest grades in nutrition courses by the Borden Foundation. This honor carries with it prize money amounting to $600. Miss Rowe recently completed her work on her master's degree at Teachers College, Columbia University.

An honor of another type was recently received by Helen Robertson Chairman of the A.D.A. Public Relations Committee. Miss Robertson, who is food editor for the Cleveland *Plain Dealer*, has been elected president of the Zonta Club of Cleveland. She has been a member of Zonta for seventeen years.

Awards Presented for Nutrition Research. Dr. L. A. Maynard of Cornell University received the Borden award in nutrition, which was presented at a dinner of the American Institute of Nutrition, held during the meetings of the Federation of American Societies for Experimental Biology in May in Chicago. The presentation was made for his work in dairy science. At the same dinner the Mead Johnson award in nutrition was divided among three scientists for research done on folic acid. They are: Dr. Paul L. Day, University of Arkansas; Dr. William J. Darby, Vanderbilt University School of Medicine; and Dr. E. L. R. Stokstad, Lederle Laboratories.

Dr. Milicent Hathaway, nutrition specialist in the Bureau of Human Nutrition and Home Economics of the Department of Agriculture, was presented the eleventh annual Borden award in home economics at the American Home Economics Association Convention in St. Louis in June. The Gold medal and honorarium of $1000 was won by Dr. Hathaway for her studies concerning thiamine and riboflavin.

New AHEA Officers. Dr. Marie Dye, dean of the School of Home Economics, Michigan State College, was chosen President-Elect of the American Home Economics Association at its recent annual meeting in St. Louis. She will take office as president for a two-year term next year, succeeding Mrs. Katharine M. Alderman of Minneapolis. Other officers elected included: Vice-President, Edna M. Martin, director of home economics, Seattle Public Schools; Recording Secretary, Helen P. Hostetter, professor of journalism, Kansas State College. This was the first election in the history of the AHEA conducted by mail. Each of the 18,000 members of the Association received a ballot, to be returned at the time of the convention. Previously, officers have been chosen by the Association's council.

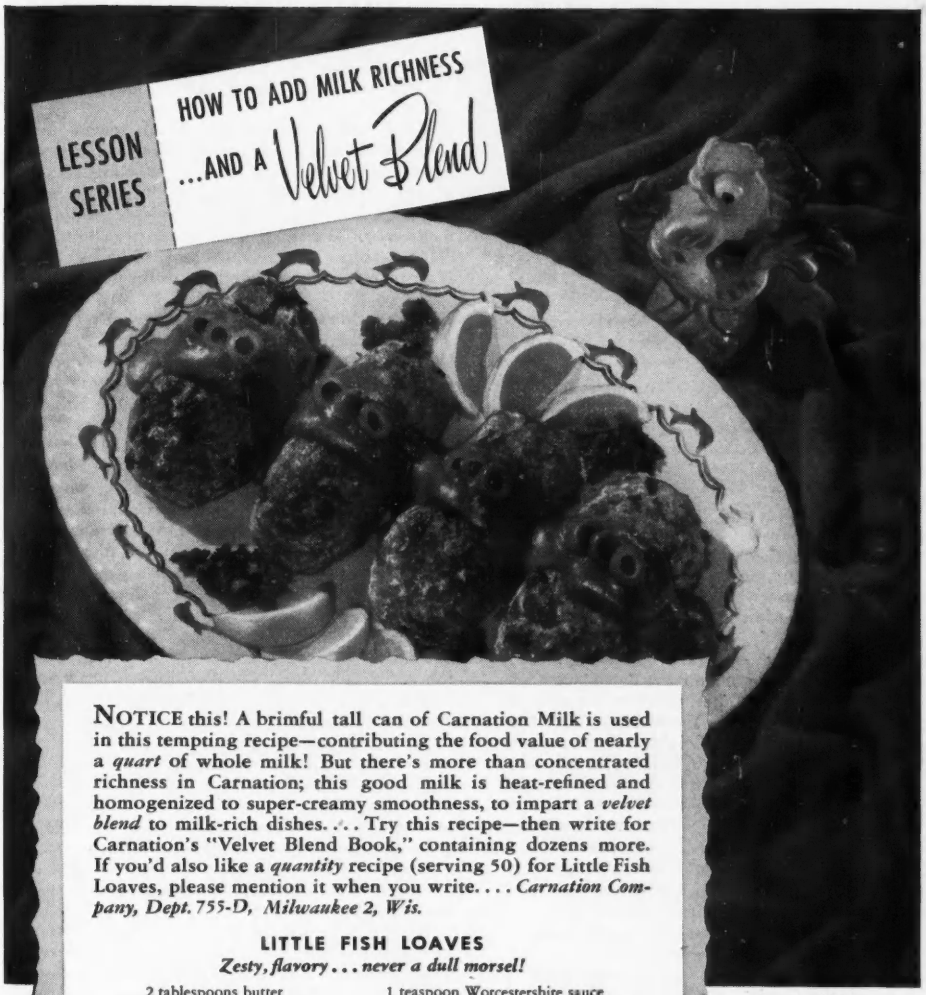
New Graduate Program for Home Economists. A new graduate program in home economics education leading to the master's degree was started this summer at Simmons College, Boston. Courses in child study, home furnishings, advanced clothing, and experimental foods will be taught by regular staff members of the institution as well as by visiting specialists.

Minnesota Law for Registering Superintendents. The first state law requiring hospital administrators to meet certain minimum requirements before being certified for executive positions became effective July 1 in Minnesota. It provides that a hospital administrator must be at least twenty-one years of age, of good moral character, and have had at least two years' experience in an administrative position in an institution or have successfully completed one year of formal training in an approved course in hospital administration and a one-year internship.

Administrators and superintendents holding positions at the time the law went into effect will be granted registration certificates on application before October 1, 1947.

Dietetic Interns Graduate. On July 2 eight dietetic interns at *Eastman Kodak Company*, Rochester, New York, completed their training with the presentation of membership pins for A.D.A. at graduation exercises. This is the largest class to complete internship at Eastman since the course was started in 1943. Marjorie J. Blackwood of Woodbury, New Jersey, delivered the valediction for the class and was cited as the "outstanding student" for her superior rating in food administration and professional standards. To date, twenty-six interns have completed the course, and eight new students will be admitted to the course on July 14.

Graduates are: Marjorie J. Blackwood, Pennsylvania



NOTICE this! A brimful tall can of Carnation Milk is used in this tempting recipe—contributing the food value of nearly a *quart* of whole milk! But there's more than concentrated richness in Carnation; this good milk is heat-refined and homogenized to super-creamy smoothness, to impart a *velvet blend* to milk-rich dishes. . . . Try this recipe—then write for Carnation's "Velvet Blend Book," containing dozens more. If you'd also like a *quantity* recipe (serving 50) for Little Fish Loaves, please mention it when you write. . . . *Carnation Company, Dept. 755-D, Milwaukee 2, Wis.*

LITTLE FISH LOAVES

Zesty, flavory . . . never a dull morsel!

2 tablespoons butter	1 teaspoon Worcestershire sauce
6 tablespoons flour	2 tablespoons minced parsley
1 tall can Carnation Milk	2 cups flaked salmon or tuna
1 teaspoon salt	1 cup finely rolled crackers
½ teaspoon pepper	½ teaspoon grated lemon rind

Melt butter in saucepan, blend in flour. Gradually add Carnation Milk and seasonings. Cook until very thick, stirring constantly. Cool. Stir in parsley, salmon or tuna, crackers and lemon rind. Shape into individual loaves and place in greased baking dish. Bake in a moderate oven (350°-375° F.) about 30 minutes. May be served with tomato sauce. Garnish with sliced stuffed olives. Serves 4 to 6.

Carnation Milk is now fortified with pure crystalline vitamin D_3.

FOR A Velvet Blend... USE

"From Contented Cows"

State College; Jane M. Decker, Iowa State College; Geraldine G. Gowen, University of Nebraska; Gloria A. Kelly, University of Iowa; P. Eileen Kunc, Oklahoma A. and M. College; Joan M. Livesay, Madison College, Harrisonburg, Virginia; Helen I. Ryan, Michigan State College; Marie E. Vouaux, Syracuse University.

Veterans Administration Hospital, Hines Illinois, held graduation exercises on July 11 for thirteen dietetic interns. Included on the program was Dr. Thelma Porter, who spoke on "Educational Opportunities for the Dietitian." Those who received certificates were Eleanor M. Birkholz, Mt. Mary College; Emma Marie Dugan, Illinois Institute of Technology; Kathleen D. Heller, Rosary College; Marjorie Hollingshead, Colorado A. and M. College; Vernice L. Jennrich, Milwaukee-Downer College; Helen C. Kochanowicz, Mt. Mary College; Helen M. Maloney, Illinois Institute of Technology; Edwina Loretta McDonald, Rosary College; Onie J. Murphy, Oklahoma A. and M. College; Louella C. Peterson, Rosary College; Lorraine A. Pufahl, South Dakota State College; Katharine Messler Smith; and Virginia J. Tabor, Northern Illinois State Teachers College.

Student Dietitians Annual Dinner. The class of 1947, Indiana University Medical Center held its annual dinner in June in Indianapolis. Eighteen students, representing sixteen colleges were honored at the festivities.

Florida State University. On May 15, Governor Caldwell of Florida signed the "Higher Education Bill" which had been passed by the Florida Legislature. By the passage of this act, Florida State College for Women, Tallahassee, became the Florida State University, a co-educational institution. This institution offers one of the administrative courses for dietetic interns which is approved by A.D.A. The course is under the direction of Anna M. Tracy, a past-president of the Association.

Dr. Adolph New Head of Yenching University. Dr. William H. Adolph, head of the chemistry department at Yenching University, Yenching, China, was recently elected acting president of the University. He will take over the duties relinquished by President J. Leighton Stuart when he became American Ambassador to China. Dr. Adolph, author of several articles which have appeared in this JOURNAL, has been engaged in nutrition research, much of it in China, for the last thirty years. During the war he was in this country, working at Cornell University.

Army Plans New Research Center. Announcement has been made that the Army will build at Forest Glen, Maryland, what will be the "greatest medical research center in the world." The initial cost is estimated at approximately $40 million, and construction will be done by the Army Engineers. Officially designated as the "Army Medical Research and Graduate Teaching Center," the project will consist of a 1000-bed general hospital, capable of expansion to 1500 beds; the Army Institute of Pathology building; the Army Medical Museum and Center Administration building; Central Laboratory Group buildings; and the Army Institute of Medicine and Surgery. A working library, animal farm, quarters for the staff, and other buildings are included in the plans.

The Center will serve to bring together many important units now scattered in various parts of the country, including the Medical Nutrition Laboratory, now located at the Quartermaster Depot in Chicago. This laboratory now deals almost entirely with normal diets, but it is proposed that it conduct studies on the needs of wounded men, some of whom have lost 20 to 30 lb. in a short period of hospitalization.

Restaurant Course in Florida. Florida State University, Tallahassee, has announced the inauguration of a restaurant and hotel training program which will begin in the fall. It will be administered through the Division of Applied Social Sciences, and the University will work closely with the education committee of the Florida Restaurant Association in the development of the program. Helen Underwood, who has been head of the department of institution management, Syracuse University, for the past year has been appointed as director of the course. She holds a master's degree from Teachers College, Columbia University, and has also had experience teaching in the Division of Institution Management, School of Home Economics, University of Illinois, and as director of food service, University of Vermont.

Food and Nutrition Board. A recent mimeographed release from the National Research Council describes the functions and organization of the Food and Nutrition Board as well as the membership and affiliated representation of this organization. It also includes a list of names of the members of the Board and in addition the membership of committees and sub-committees. The publications of the Board since 1942 are listed, as well as contemplated publications.

International Health Conference. A report on the International Health Conference which was held in New York City from June 19 to July 22, 1946, has been published by the Department of State as Publication 2703, Conference Series 91. It may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for a price of 35 cents.

This was the first conference to be convened by the United Nations and was the largest and most representative international health conference ever held. The Constitution of the World Health Organization was adopted and signed by representatives of sixty-one nations. It provides for a broader scope of activity and a potentially more fruitful program than any hitherto attempted in the field of world health.

Those phases of the proposed program relating to food and nutrition have been discussed by Henry R. O'Brien in the article entitled "The World Health Organization and Global Nutrition" in the February, 1947, issue of the JOURNAL.

Safety Posters. Frequently the *National Safety News* includes in its monthly listing of posters some which are especially appropriate for teaching safety in institutional kitchens. In the June, 1947, issue three posters are presented which picture cross-stacking of cases for storage, proper removal of can covers, and the correct lifting technique for heavy articles. They are distributed free of charge by the Embassy Grocery Corporation, 407 Greenwich Street, New York 13.

Also in the June issue are samples of posters which the Safety Council is making available until November, 1947. They include, "Ten Easy Ways to Fall," and an illustration for scouring powders and soaps. For further information, write to the National Safety Council, 20 N. Wacker Drive, Chicago 6, Illinois.

Meal Planning for New Haven Railroad. In the June 21, 1947, issue of *Hotel and Restaurant News*, the work of Mary Margaret McGovern, dietitian for the New Haven Railroad, was featured in a news story. Miss McGovern plans meals for approximately 178,000 passengers on 491 trains daily. Often special menus must be planned for trains carrying football and baseball teams and college students. Ski trains, camera trains, bike trains, and other excursion "specials" also offer individual problems in feeding. Since the New Haven Railroad operates primarily in New England, local dishes, such as broiled Boston scrod, Cape Cod lobster, and New England apple pan dowdy appear regularly on the menus. A special children's menu is made up to look like a small blackboard with suggestions listed under such titles as "Locomotive Special," "Caboose Special," and so forth. Strained meats, vegetables, and fruits are carried for babies. For youngsters who eat all

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Low Serving Cost

Heinz Condensed Soups in 51-oz. tins. Each tin serves twenty 5-oz., seventeen 6-oz. or fourteen 7-oz. portions. A number of popular and appetizing Heinz varieties that save time and labor are now available.

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Heinz Soups in 51-ounce packages give important service and economy advantages that will prove as helpful to you as to the thousands who are using this modern soup service.

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Ask Your Heinz Man About

HEINZ 57 SOUPS

their food, the steward or hostess has a large color book and a set of crayons to keep them amused on their journey.

Newspaper Spotlights Dietetics. The Cedar Rapids *Gazette* recently published an item concerning the need for dietitians, the scope of dietetic work, and the training facilities offered at the University of Iowa under the direction of Dr. Kate Daum. The University felt that both the copy and photographs used were so good that it has reprinted the article in full, making it into a folder to be distributed to prospective students.

Spanish Booklet on Food Composition. Scripps Metabolic Clinic, La Jolla, California, has published a new booklet titled *Composición Química de Alimentos.* It is written in Spanish with an English translation, and the work was done by Marjorie E. Clubb. The protein, fat, carbohydrate, caloric, and salt composition of the various foods are given in 100-gram portions and household measurements. The booklet contains some information as to the function and sources of the vitamins and minerals, and there is a brief outline of acid-ash, alkaline ash, and neutral foods. The mineral and vitamin composition of the foods and the accepted dietary allowances for the nutrients is not given, however, and some of the foods rich in vitamins and minerals are omitted. For example, milk was omitted from the list of foods rich in riboflavin. This book, nevertheless, should prove useful to those dietitians who must speak of food in both Spanish and English, as it presents the terms that will assist in developing the necessary vocabulary.

Drop in Milk Drinking. The average American is drinking less milk this year than last, according to the Bureau of Agricultural Economics. Sales of fluid milk, as well as of cream and ice cream, have already fallen below last year and probably will continue at a lower level. One reason for the decrease is that consumers are buying other goods which they have been unable to get heretofore because of war scarcities. This drop means that the national diet will not rate as high in calcium and riboflavin as it has in recent years.

School Lunchroom Booklet. The Federal Security Agency recently published a booklet, *Planning and Equipping School Lunchrooms,* which deals with plans for school lunchroom layouts and equipment needs for lunch programs of various sizes. The booklet may be purchased from the Superintendent of Documents, Government Printing Office, Washington, for 10 cents.

Refresher Course in Hospital Catering in England. A refresher course in hospital catering was held in Manchester, England, April 15 to May 1, under the auspices of the Nuffield Provincial Hospitals Trust. This was the largest course of this type ever held in England. Since various aspects of industrial catering were incorporated in the course, invitations were extended to personnel from industrial firms with large canteens and school lunchroom people. Subjects covered included conservation of vitamins through proper cooking, cooperation of doctors with the dietary department, quick freezing, proper use of equipment, and reduction of waste.

Nutritional Survey in Alaska. A three-month nutrition study of representative sections of the population of Alaska will be conducted this summer. Dr. Carroll F. Shukers and Dr. John R. Totter, associate professors of physiologic chemistry at the University of Arkansas School of Medicine, will make the survey. Special effort will be made to determine the cause of corneal opacities. Biochemical determination of various nutrients in the blood and urine will be made in those areas in which eye conditions have been observed. Clinical signs of malnutrition and evidence of deficiency diseases will be noted, as well as investigations of diets, food supply, and food cost. The Alaska Native Service personnel will work with the territorial Department of Health to further the survey. The study has been made possible by grants from the U. S. Public Health Service, the Nutrition Foundation, and the U. S. Children's Bureau.

Food Featured in *Building America*. A recent issue of the monthly periodical, *Building America,* was devoted to the presentation of the food situation which prevails all over the world. Chapters carried such titles as "What Are the World's Resources for Food Production," "Modern Machinery and Devices Increase Food Production," "What Are the Possibilities for More Food." This periodical is distributed by Americana Corporation, New York City.

Precooling and Quality. The first 24 hr. after harvest are often the hardest on the quality of the vegetable, says W. T. Pentzer, plant physiologist of the U. S. Department of Agriculture. Freshly picked, still living, growing vegetables give off heat. Closely packed vegetables will release enough heat to raise the temperature in the centers of the baskets by several degrees. Deterioration in quality usually begins immediately and may be seen in yellowed leaves as well as loss of flavor. Respiration, which is the source of vital heat thrown off by the plant, uses up natural sugar rapidly at temperatures between 65° and 85°F. Precooking the fresh vegetables for storage at low temperature will slow up respiration and the loss of natural sugar. It also will retard growth of the microorganisms that cause spoilage. Mr. Pentzer points out that the vegetables should be spread out loosely so that most of the surface is exposed and the air or water used for cooling should be moved over the fruit or vegetables at good speed as well as at low temperature.

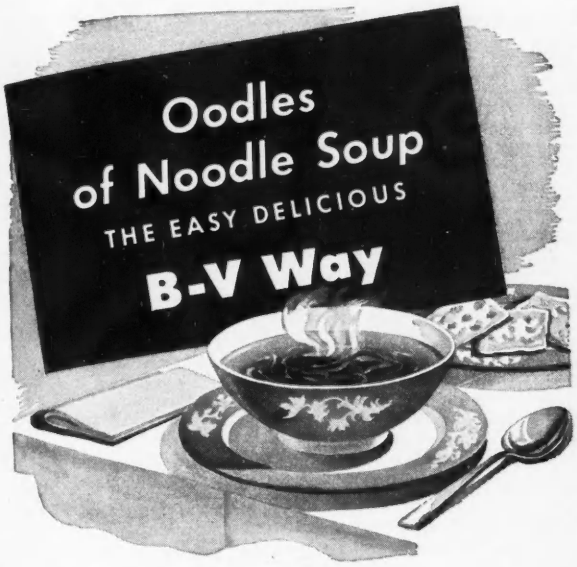
Home Canning Low-Acid Foods. How to successfully can low-acid foods, such as meats and vegetables, which are subject to spoilage by numerous types of organisms is outlined in Technical Bulletin No. 930, November, 1946, of the Department of Agriculture. The bulletin is titled *Home Canning Proccesses for Low-Acid Foods* and describes the method used for destroying harmful organisms without destroying the food being canned. Tables are given for computing the necessary heating period and the type of container for various kinds of vegetables.

Thiamine Retention in Broiled Bacon. Scientists working on nutrition problems at the Minnesota Experiment Station, state that tests show that broiled bacon holds significantly more of its thiamine than bacon cooked in the frying pan. The bacon cooked on a rack about 4 in. below the flame held two thirds of its original thiamine while that cooked in a frying pan held less than half, even though the fat was drained several times during cooking. Medium-lean bacon may be considered a fair source of thiamine as well as a little riboflavin.

Saving Vitamins in Lima Beans. Tests at the Virginia Experiment Station showed that Lima beans in the pod held at room temperature for two days lost 39 per cent of their ascorbic acid, but shelled Lima beans lost 67 per cent. Held in the refrigerator, the beans lost much less ascorbic acid, but in this state also the shelled lost far more than those in the pod. To obtain maximum vitamin content, Lima beans should be picked at the earliest stage of maturity and immediately before cooking. It was also found that beans cooked for 3 hr. lost twice as much ascorbic acid as those cooked only 30 min.

Protein in Summer Dinners. According to a report from the Mississippi Experiment Station, too often summer dinners are lacking in protein. Meals usually consist of garden vegetables, cornbread or biscuits, and iced tea, with milk, cheese, eggs, meat, fish or poultry seldom appearing on the menu. Because dinner generally is the main meal, it is important that it provide from a third to a half of the nutrients for the day. Although the study was made only in farm homes in one state, this conclusion is well worth considering in studying seasonal dietary habits.

New Booklet on Copper. The Copper and Brass Re-



When the order is for oodles and oodles of rich, meaty soup full of golden noodles—it's B-V you want. Never has delicious, nutritious noodle soup been made so easily—economically. Any kind of B-V soup is "Good Food for Good Health." See free offer below.

B-V NOODLE SOUP—QUANTITY

INGREDIENTS	6 SERVINGS	25 SERVINGS	100 SERVINGS
Noodles, broken..	¾ cup	6 oz. (3 cups)	1½ lb.
Margarine.....	3 tbsp.	¾ cup	1½ lb.
Boiling water.....	6 cups	6 qts.	6 gal.
Wilson's B-V.....	3 tsp.	3 oz. (4 tbsp.)	12 oz. (1 cup)
Volume.....	6 cups	6 qts.	6 gal.

Add noodles and margarine to boiling water and simmer, covered, until tender. Add B-V which has been dissolved in a small amount of the hot cooking liquid. Add salt, if desired, to suit taste. Approximate cost per serving: 2 cents.

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Wilson's B-V is a delicious blend of concentrated meat extract and selected vegetable flavors. It adds valuable nutrients to the diet.

One teaspoon of B-V, the amount used to make a cup of broth, furnishes 27% of the day's requirements of iron, 74% of the riboflavin, 26% of the niacin, and 8½% of the thiamine, based on amounts recommended by the National Research Council for a sedentary woman weighing 56 kg.

FREE! Generous 2¼ oz. sample of B-V

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A set of expertly prepared and tested B-V "large quantity" recipes for institutional use.

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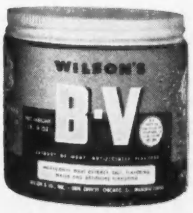

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search Association of New York City recently published a brochure, *Copper and Health*, which covers such subjects as toxicity of copper, copper as a nutrient, copper cooking utensils, copper in water supplies, copper in agriculture, and copper in modern medicine. The booklet brings out points to disprove the conception that copper is dangerous to human beings. Single copies are available on request.

New Trade Paper. The Topics Publishing Company, publisher of *Food Field Reporter*, recently began publication of a new paper, *Food Topics*. It is directed to the retail grocer and food dealer.

Army Film. "Seeds of Destiny" is the title of a film which is distributed by the Army's Information and Education Division, and which was shown at the annual meeting of the New York State Dietetic Association at Lake Placid in May. The film shows scenes of the European war areas and stresses the importance of food for world recovery. It is loaned from the U. S. Army Film Library, and is listed for adult audiences only.

Processed Fruits and Vegetables is the title of a booklet published by the Household Finance Corporation. The food values of canned, frozen, dehydrated, evaporated, and dried fruits and vegetables are discussed briefly and the grade labeling required by law in Canada and the U. S. is outlined.

New Reference Booklet on Milk. The Milk Foundation, Chicago, has recently published *Newer Knowledge of Milk* which tells in concise form the importance of milk to human nutrition. Three chapters deal with kinds of milk, the constituents of milk, and its value as a food. The portion dealing with sanitary control of milk is noteworthy. The tables and reference lists are especially helpful.

News of State Associations

California Dietetic Association. About 160 dietitians attended the two-day meeting of the California Dietetic Association held at the St. Francis Hotel, San Francisco, on June 23 and 24. Guest speaker at the opening luncheon was Dr. J. C. Geiger, director of public health, City and County of San Francisco, who spoke on "Prevention of Food Poisoning." Dr. William S. Talbot, executive director, Research Institute, Stanford University, talked on "Food Trends" at the dinner meeting. Other speakers and their topics were: Dr. Douglas Gordon Campbell, "Psychosomatic Aspects of Nutrition," and Dr. Agnes Fay Morgan, "New Developments in Food and Nutrition Research."

Officers elected for 1947–48 were: President, Helen Hawver Anderson, Stanford University Hospitals, San Francisco; President-Elect, Clancy Morrison, Occidental College, Los Angeles; Vice-President, Grace Johnson, Cottage Hospital, Santa Barbara; Secretary, Evelyn Langenwalter, St. Luke's Hospital, San Francisco; and Treasurer, Margaret Gray, Lily Tulip Company, Los Angeles. New section chairmen are: Community Nutrition, Margaret Clover, Scripps Metabolic Clinic, La Jolla; Professional Education, Helen R. Cahill, Veterans' Administration, San Francisco; Diet Therapy, Eugenia Sanderson, Cedars of Lebanon Hospital, Los Angeles; and Food Administration, Octavie deBeaulieu, Olive View Sanatorium, San Fernando.

District of Columbia Dietetic Association. The spring meeting was held at the Shoreham Hotel on Friday, April 25. The speaker of the evening was Kathleen Small, formerly a faculty member at Cornell University and recently with the War Production Board. She spoke on "Public Relations for the Professional Women." Beulah Hunzicker, treasurer of A.D.A., reviewed current problems of our national association. The May meeting was held at Mt. Alto Hospital on May 26. Earl Daniels of the Veterans Administration spoke on the "Use of Artificial Limbs" and the progress made in their development. In June, the District Dietetic Association met at "Top Cottage," located at the National Institute of Health. Dr. G. W. Hunt, assistant chief of the Hospital Division of U. S. Public Health Service, spoke on the work of that organization. This meeting was held jointly with the District of Columbia Home Economics Association. Mildred Horton, executive secretary of the American Home Economics Association, was a guest.

Iowa Dietetic Association. New officers elected at the spring meeting were: President-Elect, Florence Unash, State Department of Health, Des Moines, and Vice-President, Helen Goodenow, Currier Hall, Iowa City.

The June issue of the *Iowa Dietetic Association Bulletin* featured plans for recruiting more dietitians and included a comprehensive outline of possible recruiting methods and techniques.

Missouri Dietetic Association. State and local dietetic associations of Missouri are sponsors of numerous radio programs to help the housewife with food and nutrition problems. Radio programs have been sponsored previously by the Missouri Nutrition Council, but are now jointly sponsored by the Nutrition Council and the *St. Louis Dietetic Association*. Plans are being worked out by one station for making transcriptions of the nutrition programs, so that they may be broadcast by a number of smaller affiliated stations.

The *Kansas City Dietetic Association* held its spring meeting at the Hotel Bellerive on May 22, at which Mary I. Barber, director of home economics for the Kellogg Company, Battle Creek, Michigan, and past-president of A.D.A., was guest speaker. Her subject was "Food Is Our Business."

Officers of the *Columbia Dietetic Association* are as follows: President, Mrs. M. E. Wightman; Vice-President, Mrs. John W. Cheavens; and Secretary-Treasurer, Mrs. Leroy Korschgen.

Nebraska Dietetic Association. The spring meeting of the Nebraska Dietetic Association was held at the Hotel Fontenelle in Omaha, on May 26. At the afternoon session Anna Smrha, nutritionist for the State Department of Health, talked on "Nutrition Service of the Nebraska Public Health Department." A demonstration of ward teaching methods was given by Vesta Davis, Carolyn Knowles, and Alice Sorensen—all Omaha dietitians. The last speaker of the afternoon was Grace Merrill, supervisor, Dining Car Service, Union Pacific Railroad. Her subject was "The Woman's Point of View."

After the business meeting, the group met for dinner in the Assembly Room of the hotel. The after-dinner speaker was Dr. John Gedgoud, associate professor of pediatrics, at the College of Medicine, University of Nebraska. He used slides to illustrate his talk on the relation of nutrition to the incidence and therapy of rheumatic fever.

Ohio Dietetic Association. Newly elected officers of the Ohio Dietetic Association for 1947–48 are: President Helen Volk, Cincinnati General Hospital; President-Elect, Helen Mallory, University Hospitals, Cleveland; Vice-President, Gladys Mason, Huron Road Hospital, Cleveland; Secretary, Mary N. Letherman, Mt. Carmel Hospital, Columbus; and Treasurer, Margaret Walsh, Cleveland Welfare Federation.

Cincinnati Dietetic Association. At the May meeting the dietetic interns from the three Cincinnati training groups presented a program entitled "Foreign Food for Fun." Six representatives, dressed in native costumes, told about the food customs of six nations. Later in the evening typical dishes from the various countries were presented by several Cincinnati restaurants.

The *Cleveland Dietetic Association* held its last meeting of the year on May 22 at St. Luke's Hospital. The speaker

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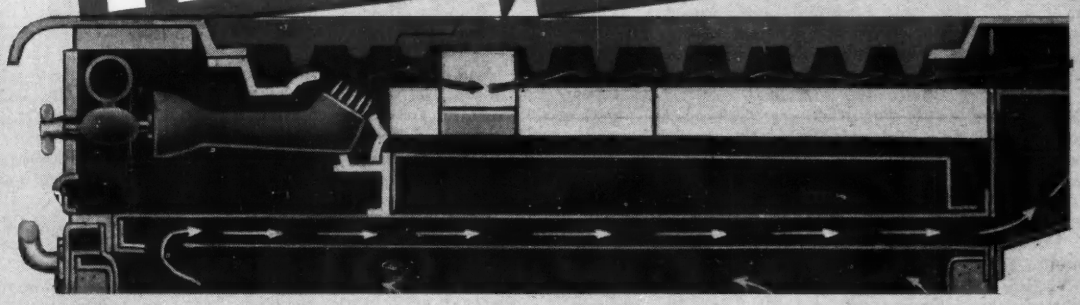

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of the evening was George C. Petry, chief food inspector of the Food and Drug Administration of the Cleveland Department of Health. He discussed the sanitary code and its application to restaurants and hospitals. The officers elected for the coming year were: President, Magdalin Klobe, St. Luke's Hospital; President-Elect, Jean Janovsky, City Hospital; Vice-President, Gertrude Weber; Treasurer, Mary Scaravelli, City Hospital; and Secretary, Jane Sheldon, Lutheran Hospital.

Columbus Dietetic Association. The last meeting of the year for the Columbus Dietetic Association was celebrated with a picnic on the campus of Ohio State University. Officers for next year will be: President, Mary Letherman, Mt. Carmel Hospital; President-Elect, Margery Brock, University Hospital; Secretary, Virginia Stacey, The Ohio Fuel and Gas Company; and Treasurer, Phyllis E. Worthman, White Cross Hospital.

Dayton and Montgomery County Dietetic Association. The results of the election of officers were announced at the June picnic, held at Triangle Park. For the coming year, the officers are: President, Dorothy Glaser, Stillwater Sanatorium; Vice-President, Elvira Traina, Miami Valley Hospital; Treasurer, Barbara Lorenz, Miami Valley Hospital; Recording Secretary, Hilda Hodgson, Dayton Board of Education; Corresponding Secretary, Anita Spieler, Dayton Department of Health.

Virginia Dietetic Association. As a result of the spring election, the following officers will serve the Virginia Dietetic Association for 1947–48: President, Mabel Gladin; President-Elect, Evelyn Wolfe; Vice-President, Margaret Fitzhugh; Secretary, Mary Jane Allen; and Treasurer, Mary Burnett. Recently a letter was received from a dietitian in Holland, Mrs. Mary Hirschel, asking for material on the latest work in nutrition. Several Richmond dietitians gathered together literature and sent a package to her. Later, another letter was received which told of her work in a 200-bed hospital in Amsterdam. The Virginia Dietetic Association has voted to send her the JOURNAL and the Dutch copy of *Reader's Digest*.

Richmond Dietetic Association. New officers for the coming year are: President, Flo Stephens, Stuart Circle Hospital; Vice-President, Mary Fletcher, McGuire Veterans Hospital; Secretary, Elizabeth Hazelgrove, Federal Reserve Bank cafteria; and Treasurer, Helen Robertson, formerly of Johnston-Willis Hospital. The programs for the Richmond Association's spring meetings included Dr. Emily Gardner, who spoke on recent findings in pediatric nutrition; Miss Osborn of the Richmond office of the National Dairy Council, who showed nutrition films; and Dr. Cornelia Adair, Richmond Department of Public Welfare, who talked about the work of her organization.

Tidewater Dietetic Association. Highlights of recent meetings of the Tidewater Dietetic Association include a talk by Dr. Kelley, head of the Mental Hygiene Clinic; book reviews by Mrs. Ober; an address by Dr. Hoff of the Department of Health; and a talk on the use of diet therapy in neurosurgical cases by Dr. L. Thomas.

News about Members

The following members of the A.D.A. have recently accepted new positions and appointments:

Beula Archer on August 15 became supervisor of the school lunchroom system in Port Angeles, Washington.

Wanda Bahl has left Chicago to accept a position as chief dietitian at Jefferson Davis Hospital, Houston.

Virginia L. Black, upon completion of her training as a dietetic intern at University Hospitals, Cleveland, became dietitian at St. Barnabas Hospital, Minneapolis.

Elizabeth Cook is now employed by Standard Brands Incorporated, of New York City.

Bette Jane Drouse, a recent graduate from the approved training course for dietitians at Montefiore Hospital, New York City, is now chief dietitian at the Training School, Vineland, New Jersey.

Ruth Frahm is no longer at the Commons, Reed College, Portland, Oregon. She recently accepted a position on the dietary staff at Alexian Brothers Hospital, Chicago.

Mary E. Geiling, upon completion of her year's training as a dietetic intern at Grasslands Hospital, Valhalla, New York, became assistant dietitian at the same hospital.

Margaret Glimp is now assistant dietitian at Stanford University Hospital, San Francisco. She is a recent graduate of the dietetic training course there.

Jeanette Hamlin, formerly of Immanuel Hospital in Omaha, Nebraska, is now clinic dietitian at University Hospital, Omaha.

Gwyneth Hartman Heath recently completed her year's training as a dietetic intern at Multnomah Hospital, Portland, Oregon, and is now dietitian at St. Joseph's Hospital, Elgin, Illinois.

Alice Heuberger resigned her position at Union Memorial Hospital, Baltimore, to become nutrition consultant at Mayo Clinic, Rochester, Minnesota.

Elsie Hooker, previously at Missouri Baptist Hospital, St. Louis, is now assistant dietitian at Mercy Hospital, Denver, Colorado.

Masae Charlotte Iwata accepted a position as assistant dietitian at St. Luke Hospital, Pasadena, California, following completion of the approved training at St. Marys Hospital, Rochester, Minnesota.

Dorothy A. Jackson is remaining at Massachusetts General Hospital as dietitian after her graduation from the dietetic training course at the same hospital.

Isla Jepson has left New London, Wisconsin, and is now at Theda Clark Memorial Hospital, Neenah, Wisconsin.

Marilyn Lenore Jones has resigned her position at Vanderbilt University Hospital, Nashville, Tennessee, and is now a member of the dietary department at Charity Hospital, New Orleans.

Rita Kleffner, on June 1, moved to Buffalo, New York, where she is on the dietary staff at Children's Hospital. Previously she was at Schick General Hospital, Clinton, Iowa.

Charlotte A. Lockshin, a recent graduate of the Highland Alameda County Hospital, Alameda, California, is now dietitian at Cedars of Lebanon Hospital, Los Angeles.

Frances Lohmann has accepted a position as assistant therapeutic dietitian at Emanuel Hospital, Portland, Oregon. She was recently separated from the Army.

Virginia Lombardo has resigned her position at St. Luke's Hospital, New York City, to become a member of the dietary department at Kew Gardens General Hospital, Kew Gardens, Long Island.

Leonore Mancini, who recently completed her dietetic internship at Montefiore Hospital, New York City, is now therapeutic and teaching dietitian for the White Plains Hospital Association, White Plains, New York.

Mary T. McCammon has moved from Meridian, Mississippi, to Greenwood, Mississippi, where she is at the Delta Medical Center.

Billie Joanne McDonnell is no longer at Presbyterian Hospital, Chicago. She now is nutritionist for the Beech-Nut Packing Company of Chicago.

Adele Moehl, recently separated from the Army, is now assistant dietitian for residence halls, Indiana University, Bloomington, Indiana.

Ann Molleson, formerly at Englewood Hospital, Englewood, New Jersey, is now a member of the dietary department at Orange Memorial Hospital, Orange, New Jersey.

Patricia Neilan is no longer at Philadelphia General Hospital, Philadelphia. She recently accepted a position at Somerset Community Hospital, Somerset, Pennsylvania.

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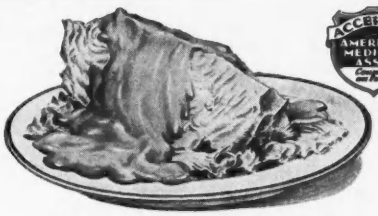

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Genevieve G. North resigned her position at Michael Reese Hospital, Chicago, several months ago, and will join her husband who is with the British Embassy in Nanking, China.

Virginia R. Peschel, formerly at Saginaw General Hospital, Saginaw, Michigan, is the new therapeutic dietitian at the University of Illinois Research and Education Hospital, Chicago.

Ruth S. Pittenger, a recent graduate from the dietetic interns' course at Stanford University Hospitals, San Francisco, is now dietitian for private patients at the same hospital.

Matilda Sophia Riedlinger is a new member of the dietary department at Dunham Hospital, Cincinnati.

Marian Rivett recently became assistant dietitian at Children's Hospital, Akron, Ohio. Previously she had been at University of Oklahoma Hospital, Oklahoma City.

Betty Sanford, following her graduation from the approved course for dietetic interns at Grasslands Hospital, Valhalla, New York, accepted a position at Duke University Hospital, Durham, North Carolina.

Anita A. Schaefer has been transferred from Nichols Veterans Hospital, Louisville, Kentucky, to Fort Custer, Michigan, where she is assistant chief dietitian.

Sister Florence Beas has been transferred from Providence Hospital, Washington, D. C., to Seton Institute, Baltimore.

Alice H. Smith has left San Francisco to resume her duties as nutrition supervisor, Division of Nutrition, Bureau of Maternal and Child Health, Michigan Department of Health, Lansing.

Doris Spragg, formerly on the dietary staff at Methodist State Hospital, Mitchell, South Dakota, is the new dietitian at Immanuel Hospital, Omaha, Nebraska.

Alda Stull is no longer at West Side Hospital, Scranton, Pennsylvania. She is now assistant administrative dietitian at St. Luke's and Childrens Medical Center, Philadelphia.

Kathleen Tarun became a member of the dietary staff of St. Mary's Hospital, Duluth, Minnesota, on July 15. Previously she had been at St. Peter's Hospital, Olympia, Washington.

Martha Stewart Tupper has been appointed director of home economics of the public relations firm of Dudley, Anderson and Yutzy, New York City. She has been assistant professor of foods and nutrition at Pratt Institute, Brooklyn, for the past two years.

Doris Vecker recently left Chicago to become dietitian for a combination school and hospital on Japonski Island, Alaska Native Service, Sitka.

Florence E. Wagner has moved from Chicago to Tallahassee, Florida, where she is working in the school lunch program, Florida State Department of Education.

Carolyn Waite, formerly at Alta Bates Hospital, Berkeley, is now on the dietary staff at Orange County Hospital, Orange, California.

Christine Wanhainen has resigned her position at the University Hospitals, Ann Arbor, Michigan, to become assistant to the director of residence halls, University of Missouri, Columbia.

Marion R. Whittier recently left Cleveland to join the staff at the University of Chicago Clinics, Chicago.

Announcements of the following marriages have been received in the JOURNAL office:

Annette Broderick (née Lahr) was recently married and is now living in New Orleans.

Violante Cook resigned her position as chief dietitian of Englewood Hospital, Chicago, to be married to Marshall A. Rice. The couple are now living in Milwaukee.

Gloria Dolan is now Mrs. E. A. Rogers Jr. and has a new position as head dietitian, City Hospital, Mobile, Alabama.

Mary Catherine Downs recently became the bride of Richard A. Thompson. They will make their home in St. Louis.

Kathryn R. Drone is now married to Edward L. Johnstone and is working in the Nutritional Research Laboratory, Mead Johnson & Co., Evansville, Indiana.

Ruth Durant (née Latimer) following her marriage, moved from Newport, Arkansas, to Paso Robles, California.

Corinne G. Ekern (née Subith) was recently married and is now floor dietitian at Kentucky Baptist Hospital, Louisville.

Gloria Ann Grainger recently became the bride of Gordon M. Murray and is living in Arlington, Virginia.

Emma Hayes, formerly at Brigham Young University, Provo, Utah, is now Mrs. Jack Penhallegan, Wenatchee, Washington.

Marian Hewitt was recently married to Eugene McMillan and has moved from Stockton, California, to Vallejo, California.

Louise Hirschy is now Mrs. Roy Edmond Wick of Minneapolis, Minnesota. Mrs. Wick will continue as senior food service supervisor of the Coffman Memorial Cafeteria at the University of Minnesota.

Jeanne Holloway will continue to live in Amarillo, Texas, following her marriage to Paul E. Burt.

Clara Barton McGehee has resigned her position at Sylacauga Hospital, Sylacauga, Alabama, to become Mrs. Robert C. Levine of Pittsburgh.

Martha Pillar, formerly head dietitian, Children's Hospital, Pittsburgh, is now Mrs. Bernard Noroski, Munhall, Pennsylvania.

Shirley Schraub, therapeutic dietitian at Lakeside Hospital, Cleveland, was recently married to James Russell Hughes. The couple are living in Cleveland Heights, Ohio.

Elizabeth Taylor, previously dietitian at Women's Hospital, Detroit, is now Mrs. T. S. Jensen of Royal Oak, Michigan.

News of Advertisers and Exhibitors

Kraft Foods Company announces the renewal of its Cuisine Service for institutions. Large quantity recipe cards, issued at regular intervals, will again be sent to institutional users. The recipes, which will feature new uses and methods of preparation for cheese dishes, will provide quantity information for both twenty-five and fifty servings. . . .*The H. J. Heinz Company,* Pittsburgh, recently started production of a new product never before handled by them—coffee for institutional users. . . .The *Detroit Michigan Stove Company* is now producing a new line of counter griddles with streamline styling and improved efficiency. Two models are available, two with standard, open-top Garland burners and two with griddle only. All come with black japan finish or stainless steel. . . Ellard Pfaelzer of *Pfaelzer Brothers, Inc.,* is the sponsor of a Chicago sandlot baseball team which practices behind the stockyards. The ten to twelve year-olds are known as "The Yearlings". . . . *American Can Company* announces the use of a new plastic material in the side seam of cans instead of solder. The plastic is a water-white, taste-free organic compound that is so tough and impermeable to moisture that the navy adopted it to line fresh water tanks aboard naval vessels. Because the plastic is applied so as to be invisible, containers can now be fully decorated by lithography, and hence be made more attractive. With the ½-in. stripe of solder in ordinary cans showing at the side seams, this has been impossible. The company also states that increased production of cans is expected to continue through 1948.